PETROLEUM WEEK

SEPTEMBER 7, 1956

■ A McGRAW-HILL PUBLICATION

Submarine geology — new tool in spreading search for offshore oil

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60-Second Summary / WHAT'S HAPPENING IN OIL

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September 7, 1956

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The Suez flare-up may prod the U. S. into building a giant fleet of supertankers. Top government officials are considering the possibility of subsidizing as many as 100 ships of 84,000-ton size or larger to keep Middle East oil moving no matter what Nasser does. . . . p. 11

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Cities Service, latest convert to three grades of gasoline, will emphasize the 100-octane rating of its new product. Meanwhile, Richfield Oil will stick to two grades and put emphasis on its new chemical additive. . . . p. 12

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Major changes in 1957 autos will have an impact on the oil industry. As many as 7-million new models will be on the road (page 25). Higher compression engines will require more power from fuel (page 9). And refiners will face a big jump in octane demands (page 29).

•

Chevrolet is said to be making the first break toward fuel injection in the passenger car field. The system—which eliminates the carburetor—reportedly will be optional on Chevrolet's 1957 higher-horsepower engines, and its Corvette sports car. One of the Big Three car makers may also have optional fuel injection on one of its 1957 luxury models.

•

Union Oil Co. has made an oil discovery "of tremendous importance" in Costa Rica, according to president A. C. Rubel. Cocolas 2, being completed at a depth of 4,950 ft., flowed 46-gravity crude at an estimated rate of 1,000 b/d with high pressures on the second of two formation tests, he said. . . . p. 35

•

Skin-diving geologists are adding a new chapter to the hunt for oil. Equipped with aqualungs and fins, submarine geologists are exploring the ocean floor off the California coast for specimens of rock outcrops. . . . p. 14

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There is more renting and less buying of oil field tools these days. The reasons: economy, convenience, and availability . . . p. 18

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Ohio Standard's "family album" provides up-to-date information on its 100 top men. The aim: efficiency and a sound basis for promotions. . . . p. 36

•

ODM is putting new pressure on oil importers. In a letter written this week, Defense Mobilizer Arthur Flemming chides some companies for failure to cut back. He hints they'd better do so before the October import hearings—or face possible mandatory action.

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
September 7, 1956

The next four weeks are critical in the oil imports dispute. The Eisenhower Administration may not spell out a new policy that quickly. But the signs will be out for all to read.

The Middle East crisis will be a deciding factor. Government officials must consider whether any cutback in imports from the area would strengthen Nasser's position with the oil-producing Arab countries. Suez negotiations in Cairo are being watched closely. Administration thinking will be reflected in the cabinet committee decision—due sometime this month—as to whether the formula for voluntary oil import restrictions should be relaxed. Domestic producers will have a chance to speak up for formal restrictions in hearings promised by Flemming for early October.

The import controversy will be aired on Capitol Hill, too. A House Ways & Means subcommittee opens hearings Sept. 17 into U. S. foreign trade policies. The so-called national security amendment, under which the voluntary oil import restriction program is being carried out, will be examined closely.

•

The fate of a new gas bill may hinge on congressional races. Industry strategists note that Republican control of the House next year would put Rep. Charles Wolverton (R., N. J.) in charge of the House Commerce Committee. He's been opposed to legislation easing federal control over gas producers. In the Senate, Chairman Warren Magnuson, (D., Wash.) is in a tough fight for reelection. If he loses but Democrats retain control, his successor in the top committee spot will be an enthusiastic foe of gas legislation—Sen. John Pastore, (D., R. I.).

There's new evidence that gas prices are going up, regardless. Texas Gas Transmission Corp. has for five years refused to pay more than 8.997¢ per Mcf in Calcasieu and Jefferson Parishes, La. But now it's paying 17¢ and more because it lost billions of cubic feet of reserves to other companies under the old policy. If FPC approves the new prices, escalation clauses will trigger off other increases in the area.

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Look for pressure to abandon the U. S. charter-build tanker program. The Military Sea Transportation Service will receive bids Sept. 12. But sharply increasing construction costs are expected to dampen the enthusiasm of the bidders. The charter rate ceiling of $5 per deadweight ton per month just isn't attractive enough, with commercial tankers rates on the increase. There may be new demands for the government to build its own tankers.

•

Controversy over military use of oil-rich public lands is still alive. Response from the Administration generally has indicated that no more public lands will be turned over to the military until Congress reconvenes. But the Navy still claims oil rights on withdrawn lands. The squabble is a hot political issue in the West, so the House Interior Committee may move to get the Pentagon attitude straight, once and for all.

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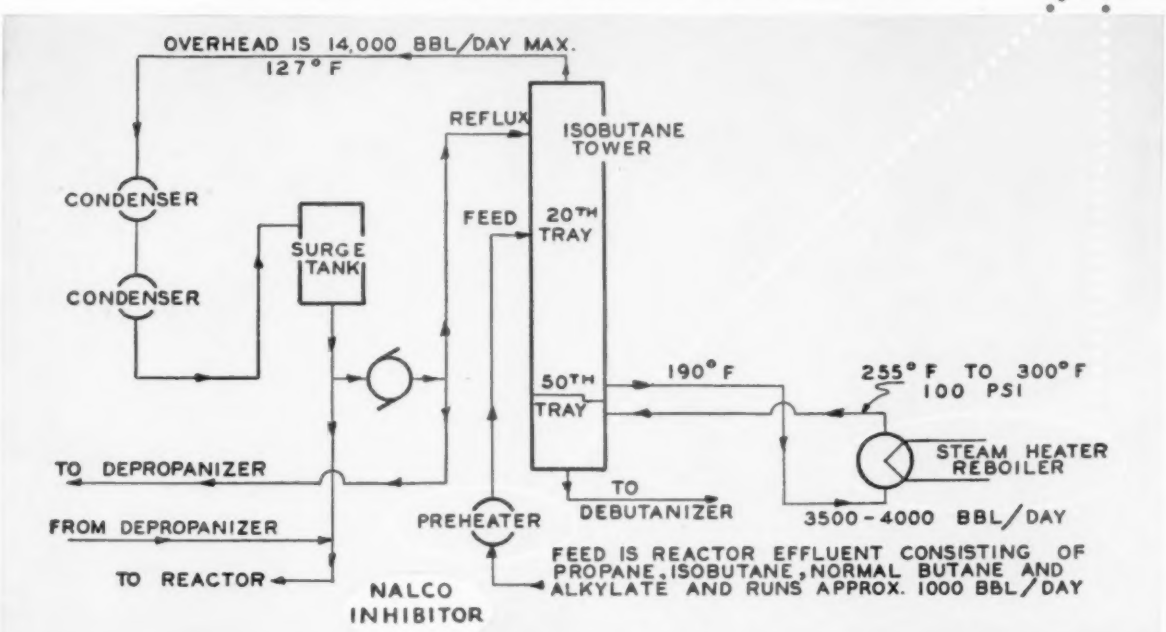

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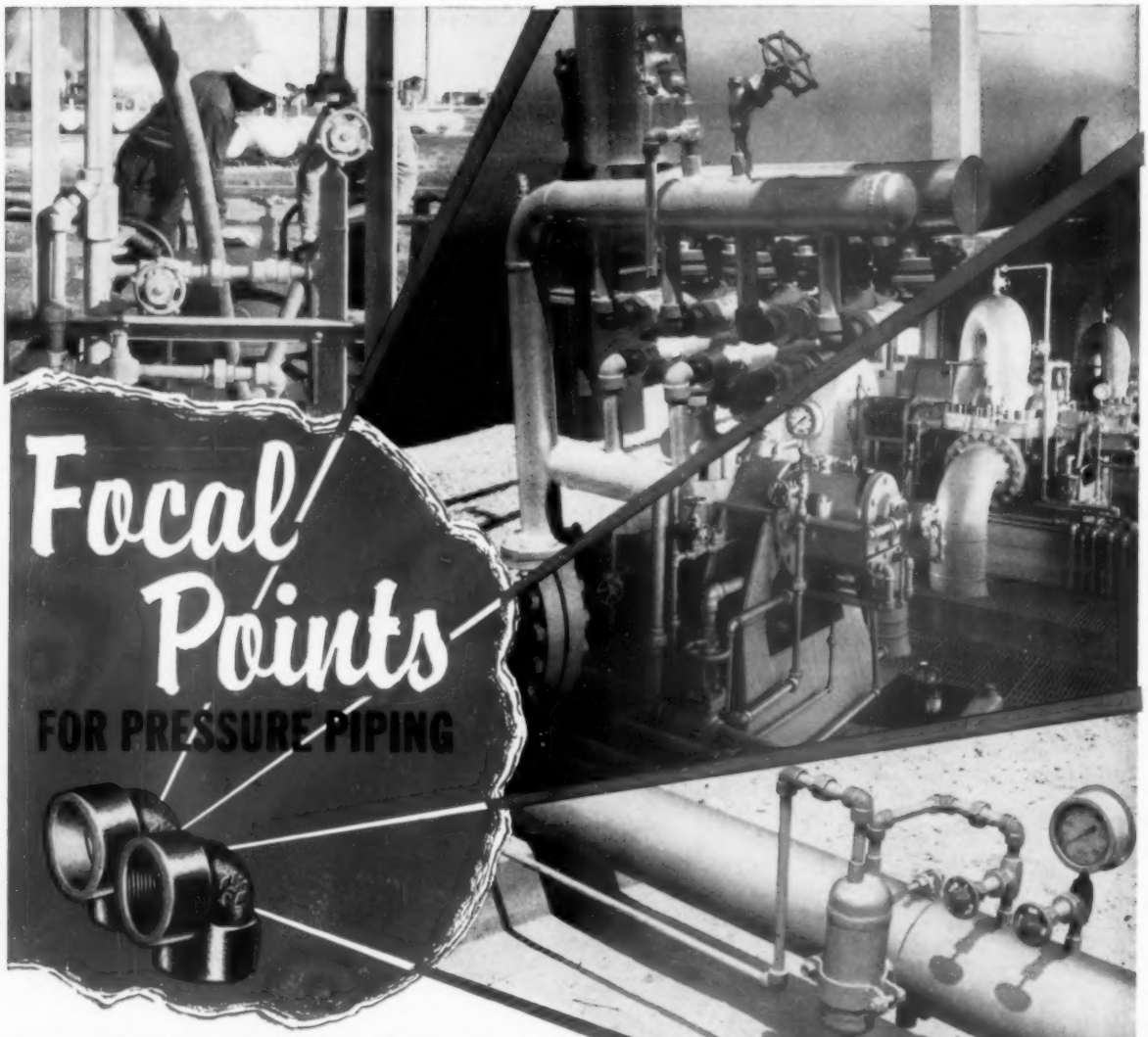

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KEY CHANGES IN 1957 AUTOMOBILES					
	1957	1956	1955	1954	1953
Compression Ratio (weighted average)	**9.14**	8.45	7.99	7.64	7.44
% of new models with **V-8 Engines**	**84.1**	76.0	61.7	45.4	35.7
% of new models requiring **Premium Gasoline**	**57.9**	39.8	22.1	16.6	8.9
Crankcase Lube Capacity (qts.)	**4.8**	4.9	5.2	5.3	5.1
Chassis Grease Fittings	**9.04**	15.6	17.7	20.4	23.3

Autos In '57: Lower, More Powerful

Look for (1) higher compression ratios, (2) smaller lube oil capacities, and (3) fewer grease fittings in 1957 model automobiles. And tires will be smaller, resulting in lower autos, on the average.

A PETROLEUM WEEK survey this week shows that oil stands both to gain and to lose from the over-all changes Detroit is making.

Tooling is nearing completion and the first models will be rolling off production lines in a matter of weeks. And, as always, the petroleum industry shows keen interest in what the automotive industry turns out. For, as always, the impact of such changes affects every segment of oil.

Compression ratios will make another big jump, to an average of 9.14:1 (chart). This means refiners will be even more pressed to turn out the higher-octane gasoline required (page 29).

Design improvement, heat of competition, and the growing number of power-actuated accessories are the prime factors behind Detroit's push to ever higher compression ratios. It's this swift climb of compression ratios that largely explains why octane ratings have kept soaring. And the end is not yet in sight. There is a good possibility that, a year from now, the 1958 models will send the weighted average compression ratio to very near the 10:1 mark.

The upward trend in compression ratios undoubtedly will force refiners to be more selective in the types of crude they purchase from producers.

It also undoubtedly will have additional impact on marketers, and may intensify industry controversy over the need for multigrade gasolines.

While the 8:1-to-9:1-ratio bracket was most common in 1956 models (about 71% of production), the 9:1-to-10:1 range leads by far in the 1957 models. Nearly 63% of all new cars produced will be in this range.

About 9% of the new models will have compression ratios of 10:1 or higher. This compares with less than 1% of 1956-model production, and none at all in 1955. It's possible that the 1957 percentage of engines having 10:1 compression ratios may go even higher, if some models now rated at 9.7:1 or 9.8:1 take a last-minute leap over the 10:1 barrier.

Production of V-8 engines also continues to step up (chart). Present indications are that at least seven 1956 six-cylinder models will be dropped from the 1957 line.

On the basis of current gasoline octane ratings, about 58% of 1957 models will require premium fuel.

The percentage of new models needing premium has risen sharply, from 8.9% in 1953 to 39.8% in 1956 (chart). But these increases have not resulted in corresponding increases in the sales of premium gasoline. This is largely due to the fact that any one year's production is still but a fraction of all cars on the road.

Some oil company officials, however, are looking for a big jump in premium sales next year. Automotive engineers, on the other hand, predict a more conservative rise in premium, in line with the gradual increase of such sales as recorded over the past several years.

Average crankcase lube-capacity —a big item for the oil industry— continues its downward trend. This time a tenth of a quart is knocked off the average, bringing it down to 4.8 qt. per car (chart).

Though the crankcase capacity is down only slightly from 1956 (chart), it continues the decline that started in 1954.

Automatic transmission refill capacities take a bigger dive—from 10.8 qt. for 1956 to 9.3 qt. for 1957. A few of the new models will have refill capacity of about only 6 qt., a big drop from the 10-qt. range formerly required.

On the other hand, the initial factory-fill capacity of rear axles appears to have gone up slightly, and averages about 4.8 pt. for 1957 models. This increased capacity, however, is offset by the continuing trend of manufacturers either to eliminate drain plugs or to recommend that the rear axle

lubricant be changed only on occasion of major repairs.

Oil also will be hit by the heaviest single-year cutback in the average number of grease fittings per car—a slash of 6.5 fittings to a new low average of 9.04 (chart).

A few new models will have more fittings than in 1956—but these are the exceptions to the rule.

One automotive engineer told PETROLEUM WEEK that his company had decided to introduce 1957 models with no chassis lube fitting at all, but that after several conferences it was decided to keep eight. He predicted that some 1958 models are likely to have no chassis lube fittings at all.

Biggest change in the TBA and service field will be in the switch from 15-in. tires to 14-in. tires. Nearly 83% of the new models will come off the assembly line with the smaller tires.

One small model will stick to the 13-in. tire and the rest will hold with the 15-in.

A slight dip in the antifreeze market potential is indicated by a drop in average cooling capacity from 20.03 qt. in 1956 to 18.8 qt. in 1957.

Among significant TBA changes:

- About 99% of the new models will be equipped with fuel filters. Oil filters will be standard equipment on about 72% of the cars produced.
- Power brakes will be standard equipment on about 10% of 1957 cars, up from 7% in 1956. Power steering also will climb.
- Electric windshield wipers will be standard on more than 16% of the new cars, option on 27% more.
- Windshield washers will be standard equipment on almost 7% of new cars, compared with 2% in 1956.

FPC Faces Showdown on Key Gas Issues

The Federal Power Commission's long-awaited rulings on some basic questions affecting the industry may be coming soon. Most important: A formula to be used in setting rates for gas producers.

The Federal Power Commission, with its annual vacations over, is ready to tackle a stack of important cases that may have a broad impact on gas producers, interstate gas pipelines, and competitive fuels.

Some—but not much—business is transacted at FPC in August. Thus, September really marks the beginning of a new work year.

The biggest problem facing the commission is still this: How do you set the price of natural gas in the field, whether produced by independent producers or by pipeline companies?

FPC has yet to come to grips with the basic question of whether rates for producers should be set on the basis of other prices in the same field or area, on the basis of percentage return on investment, or a combination of both.

In three cases thus far decided, the commission has gone out of its way to emphasize that it has not adopted either approach yet. Thus, attorneys for producers are at a loss to know what kind of evidence they should present to win commission approval for the requested higher rate.

If FPC intends to adopt a formula for regulating producers without waiting for further congressional action, it will have a good chance in Union Oil Co.'s case, which was set for reargument before the commission this week.

Many gas lawyers feel the commission can't stall much longer without serious criticism. The Union case is a major one, and is the first big rate case to reach the oral-argument stage since Wyoming Judge Arthur Kline succeeded Claude Draper on the commission.

The case was argued once, before Kline joined the commission. Gas men are speculating that the commission is badly split on the "how" of producer regulation, and the case is being reargued so Kline can exercise the deciding vote.

Some industry sources believe FPC will hold off on a precedent-making decision until it is ready to act on the Phillips case, in which hearings will resume Oct. 1. Detailed cost data is expected to be submitted in this case, which is a continuation of the historic case which resulted in producer regulation.

The commission staff, although emphasizing it hasn't settled on any specific figures, has indicated it will press for a 9% rate of return to Phillips. Attorneys for Phillips will oppose this expected move to set the price of its gas on a utility, or cost-of-production, basis. Thus, the "cost versus market value" issue will be clearly presented.

Pipeline companies with their own production have a vital interest in the producer-regulation question, because FPC apparently intends to price all gas by the same basic formula—whether it is produced by an independent or by a pipeline.

The effort of Tennessee Gas Transmission Co. to invade the Upper Midwest gas market is the biggest pipeline market-area clash facing FPC.

TGT, through an affiliate, Midwestern Gas Transmission Co., has asked FPC for authority to import up to 400,000,000 cu. ft. daily of natural gas from Trans-Canada Pipe Lines, and sell it along a line to be built between Emerson, Manitoba, and Portland, Tenn.

One move aimed at heading off the Tennessee-Midwestern application will be heard beginning Oct. 2. Proposed industrial sales in the Chicago area are considered vital to the TGT proposal. But Natural Gas Pipeline Co. of America, a subsidiary of People's Gas, Light & Coke Co., proposes to add 435,000,000 cu. ft. daily to its system capacity by purchases from Colorado Interstate Gas Co., which in turn would be tied into Pacific Northwest. This extra gas would go in part to the Chicago area.

Oral arguments on Texas Eastern Transmission Corp.'s proposal to import Mexican gas, expand its system, and convert the "Little Big Inch" from gas to petroleum products service will be held Sept. 14. The case is divided in two parts. A decision on the conversion proposal will be held off until the other parts of the case are decided.

Chief opposition to the conversion proposal comes from barge operators whose business would be damaged.

Gas markets in the Carolinas and Florida also are at stake in hearings resuming this month.

- Transcontinental Gas Pipe Line Corp. is asking authorization for facilities to deliver 60,000,000 cu. ft. daily to tidewater areas of North and South Carolina.
- Coastal Transmission Corp. and Houston Texas Gas & Oil Corp. are proposing to transmit Texas and Louisiana gas to Florida.

PETROLEUM COMMENTS / By W. M. Jablonski

Big Oil Fleet to Bypass Suez Studied

The Suez Canal crisis—grave though it is—is serving at least one useful purpose.

It is awakening the Western world to the utter folly of leaving its Middle East oil transportation entirely at the mercy of three volatile Arab countries—Egypt, Syria and Lebanon—none of which has any stake in that oil itself.

The short-sightedness of leaving NATO'S and Europe's vital oil lifeline from the Persian Gulf fields in such a vulnerable transportation position has now been brought home to Washington and London.

* * * *

Two corrective measures, therefore, are being given serious attention at the highest governmental levels. One is construction of new pipeline outlets for the Persian Gulf and Iraq oil through non-Arab Turkey, a key NATO member (PW—Aug.17'56,p10).

The other is construction of "super-super" tankers —84,000 to 100,000 deadweight tons—which would be capable of moving large volumes of Persian Gulf oil around Africa to Europe and the U. S. at no greater cost than in present conventional tankers through the Suez Canal.

* * * *

In fact, serious consideration is being given now in Washington, at top Administration levels, to subsidizing such a giant tanker construction program in U. S. shipyards.

One thought is that, in the event of a Suez shutdown, top priority could be given to building as many as 100 such 84,000-ton to 100,000-ton tankers—twice as large as the biggest super-tankers in service today and bulkier than the biggest battleship.

Under such an emergency program, it is believed that the first tankers could start rolling out of U. S. shipyards in ten months, to be followed by others every two or three months. (This would be true of the 84,000-tonners for which blueprints already exist; it would take considerably longer for new sizes.)

Each tanker of this size could deliver Middle East oil around Africa to Western Europe at an estimated rate of 8,000 to 9,000 bbl. per day. Thus, 100 such tankers could deliver 800,000 to 900,000 bbl. per day to Europe—replacing in large measure Suez's present traffic of 1,400,000 b/d.

* * * *

Even if the Suez crisis is settled amicably, Washington may still decide to encourage construction of such giant tankers—though on a modified scale—as an "insurance" measure.

The tankers would have to be built in U. S. shipyards. All foreign yards capable of building such giant vessels are already booked solid for years ahead.

U. S. construction, however, involves a double penalty. Initial costs are substantially higher than for competitive tankers built abroad (roughly $250 per ton in the U. S. versus $200 abroad). Operating costs are also higher, due to the requirement of using U. S. crews in U. S. flag vessels.

So some kind of government encouragement would be needed—either through subsidies (as done many times in the past) or through permitting transfer of the vessels, under certain conditions, to foreign flag operation—to, say, NATO countries.

The idea of building "super-super" tankers is not new. In fact, the world's first 84,000-ton tanker, being built in Japan, is slated for delivery under charter to Standard of California in November (PW—Aug.24'56, p24). Two others are also under construction.

It is merely a matter of speeding up a trend that has already started.

* * * *

Another handicap that will have to be solved is the lack of adequate harbor facilities for handling these giants. (Socal, for instance, will have to lighter off its new 84,000-tonner in smaller tankers outside of harbors.)

A whole new approach to the use of such giants is now being evolved.

One interesting idea being studied is the possibility of constructing "super" oil storage terminals at several key points in the world, to serve a number of refineries simultaneously. An oil tank farm could be built on land, to which the giant tankers would discharge their oil through submarine unloading lines built out into the sea. (This would merely be the reverse of what is already being done at Sidon, Lebanon, where oil from Tapline is stored at a tank farm, and loaded aboard tankers by a submarine line.)

The oil could then be distributed from these super-terminals, to many refineries within a large radius, either by conventional tankers, or by a pipeline distribution system.

As a starter, for instance, four such central terminals could be built to serve important refining centers—one each on the U. S. East and West Coasts, a third in Great Britain, and the fourth on the European continent.

Whatever the final outcome of the Suez crisis, it's certain that industry and government have now been jolted into realizing the need for construction of more and bigger tankers. For only thus can the West be released from dangerous dependence on the whims of volatile Middle East transit countries.

What's New / IN THE INDUSTRY

Cities Service Joins Three-Grade Trend

Oil companies are rapidly choosing sides between sticking to two grades of gasoline or shifting to three grades in their race to boost motor-fuel octane ratings.

This week each side could claim a new follower. And the industry expects more companies to announce their plans for higher octane, sometime in the near future, now that a new "octane race" is getting under way (page 29).

Cities Service is joining the ranks of companies marketing three grades of gasoline. It is the first of these to advertise a 100-plus-octane fuel.

The company's new top grade is called Cities Service 100 Plus. It will be marketed initially in key areas on the East Coast and in the South.

In addition, the company is stepping up the octane rating and other qualities of its existing premium gasoline. It is also improving the performance characteristics of its housebrand gasoline.

Richfield Oil Co. of New York, on the other hand, will market a new "super" premium gasoline on the East Coast this month, but the company will stick with two grades.

Richfield is boosting the quality of its new premium with a chemical additive. This "additive route" for new gasolines is similar to the method being followed by Sinclair Oil. The latter company will introduce its new premium with "X-Chemical," next week (PW—Aug.24'56,p32).

Richfield's new premium will be sold throughout its marketing territory extending from Maine to Florida.

•

Lawyers View Controls

The problems of natural gas controls cropped up at a meeting of the nation's top lawyers last week.

One thing appeared clear: No one has yet come up with a plan that will make both the producers and the distributors happy.

Last week's discussions were at the annual meeting of the American Bar Assn., in Dallas.

Carl Illig, associate general counsel for Humble Oil & Refining Co., told the public utility law section that natural gas hasn't been selling at prices high enough to bear its full share of petroleum costs.

He called for acceptance of a method of allocating exploration and producing costs and investments between oil and gas on some "fair" basis, such as thermal content, so gas consumers are not "subsidized" at the expense of oil.

Edwin F. Russell, a New York attorney speaking for distributors, said they recognize that gas producers must be fairly and adequately compensated.

He said that distributors will not insist on a cost formula for producers. But, he emphasized, they will insist that the producer "make some showing that his cost and expenses have increased in an amount which justifies the rate increase."

•

Two ACT Plans Approved

The Texas Railroad Commission has approved two applications for "automatic custody transfer" of crude oil by metering.

The approvals were to Phillips Petroleum Co., for the Panhandle field in Hutchinson County, and to Shell Oil Co., for the Antelope field in Clay County.

The commission was told that using meters, instead of gauging oil by hand-stick measurement in tanks, would be both a conservation and an economy measure.

The plans call for running the crude from wells through separators, surge tanks, metering tanks, and into the pipeline. This would reduce by more than half the number of tanks needed on the lease.

Witnesses said the industry plans widespread use of meters to save manpower in lease supervision as well as to reduce weathering losses and tankage.

Humble Oil & Refining Co. still has an application pending for metering oil it produces in the Anahuac field in Chambers County.

•

New Lobby Probe

Oil company lobby activities come under Senate investigation again next week.

Representatives of five or six companies are expected to be called during the three-day hearings beginning Sept. 10. Although they're unnamed as yet, it is believed the companies were picked from among the top ten contributors to the Natural Gas & Oil Resources Committee.

The special committee, headed by Sen. John McClellan (D., Ark.), was set up last spring after the so-called Case incident occurred during debate on the natural gas bill. The upcoming hearings, however, will consider all "manners and practices" of oil companies in "expressing their interest in federal legislation," not just their interest in the natural gas bill.

Committee questionnaires already have been sent to major oil companies, and an investigator has been sent to Texas to go over oil company books.

•

The Texas Co.'s purchase of the British-owned Trinidad Oil Co. was wrapped up this week.

Trinidad's stockholders voted approval of the sale on Monday. The British government had given its formal consent for the $176-million purchase earlier.

The governments of Trinidad and Tobago had previously approved the sale (PW—Aug.10'56,p34).

Trinidad Oil is a firm with integrated interests in Trinidad and Canada, and with marketing and refining interests in Britain.

•

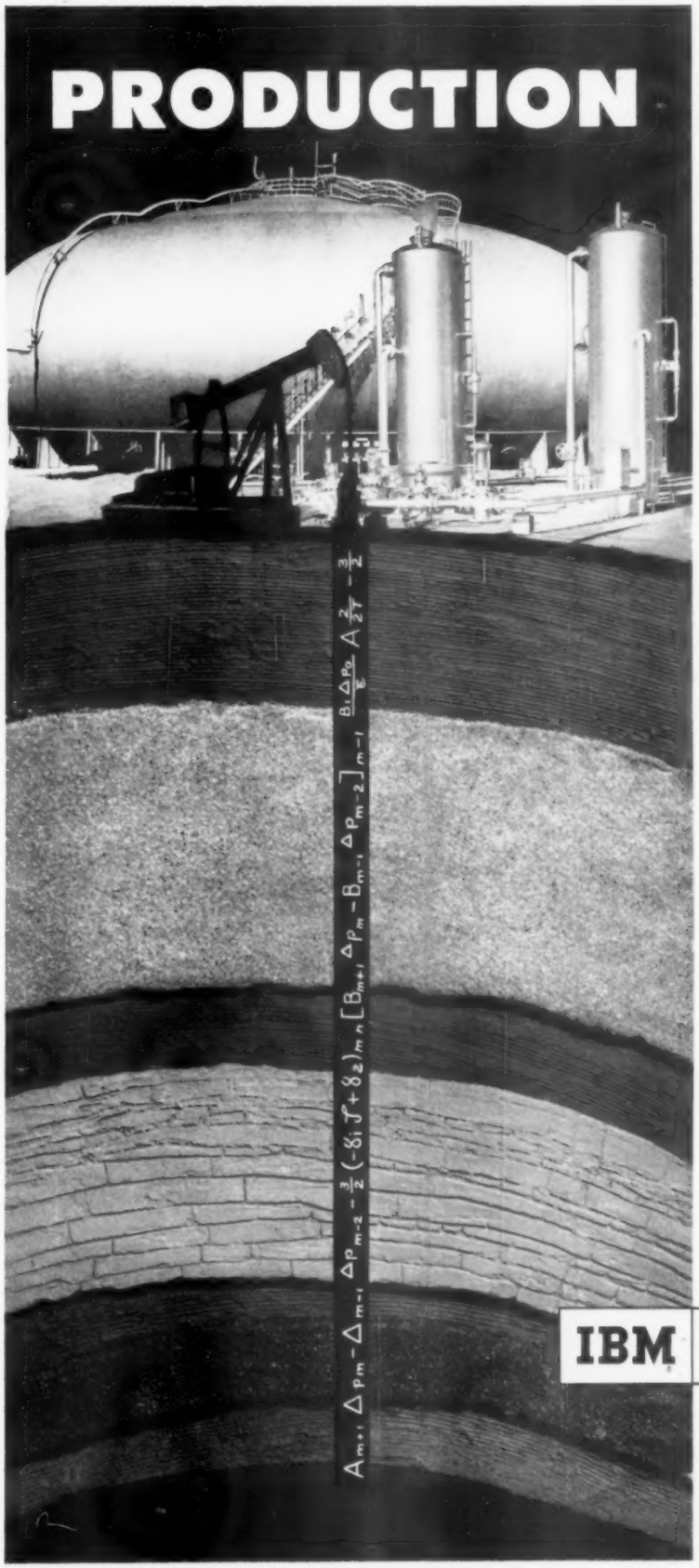
The Oil, Chemical & Atomic Workers Union has set its sights on a 30-hour week—at 40-hour pay.

In its recent convention at St. Louis, the union passed a resolution calling for the shorter work week. It said this would solve problems arising from any present and future layoffs.

OCAW also adopted a proposal for premium pay for work on Saturdays and Sundays.

editorial index

The index to the editorial contents of Petroleum Week, covering the issues published from January to June, 1956, inclusive, are now ready for distribution. Single copies will be available to subscribers without charge. Please address requests to Readers' Service Dept., Petroleum Week, 330 West 42nd Street, New York 36, New York.



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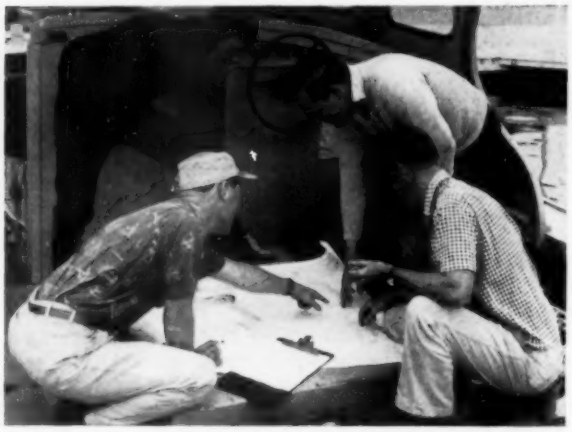
1 Tools used by skin-diving geologists include inclinometer, compass, hammer, knife, weight belt, face plate, and fins.



2 Diving geologists Stewart (in skin suit), Hamilton, Moore, and Buffington (clockwise) plot day's submarine studies.

3 Outfitted for dive, Dr. Harris B. Stewart wears full skin-diving regalia, holds geologists tools, underwater sled.

Skin-Diving Geologists Carry Oil Search

Skin-diving geologists are writing a new, and exciting, chapter in the hunt for oil off the California coast.

An increasing number of oil companies are finding that, in some offshore areas, there still is no satisfactory substitute for a trained geologist equipped with a hammer, a compass, and an inclinometer. Usually, however, the underwater geologists are used to supplement the seismic and coring work being done off the Pacific coast by various oil companies.

The skin-diving geologists owe their existence to the spreading search for offshore oil and to the development of the Aqualung. This is a self-contained diving apparatus that permits a diver to spend appreciable periods at depths previously unattainable in any normal diving suit. Yet the diver is freed of clumsy helmet, boots, dragging ropes, and pipes.

Now, with suitable training, a geologist can descend to the sea floor and, within certain limits, draw a geological map as complete as any he might make on shore.

This new and highly specialized branch of geology is now being perfected by a group of eight young marine geologists in San Diego. They're known as Geological Diving Consultants, Inc.

These eight—most of whom are in their thirties—have done virtually all of the underwater field geology on the West Coast to date.

All but one of the members of the group are presently engaged in research work either with the Navy Electronics Laboratory, Sea Floor Studies Section, San Diego, or with Scripps Institution of Oceanography, a section of the University of California. The one member who is not attached to either institution is Dr. Harris B. Stewart, Jr., who recently completed work for his doctorate at Scripps and became GDC's first and only full-time employee. The others work weekends only.

Dr. Edwin L. Hamilton, head of NEL's Sea Floor Studies Section and a recognized authority on the geology of the floor of the Pacific, also is a member of the group.

The others are Edwin C. Buffington, NEL; Joseph R. Curray, research geologist, Scripps; Robert F. Dill, NEL; Dr. Henry W. Menard, associate professor of geology at Scripps

4 Diver submerges next to marker buoy, starting point for mapping traverse.

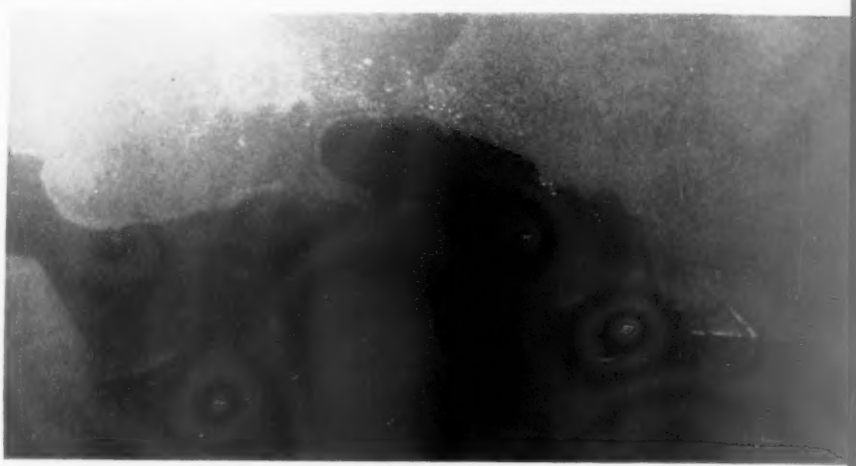
5 On the bottom, the submarine geologist takes a dip reading on a sea floor outcrop. Geyser of bubbles is from exhaled air discharged from tube behind head.

to Ocean Floor

and former head of the Sea Floor Studies Section, NEL; David G. Moore, NEL, and George A. Shumway, NEL.

GDC has mapped about 100 sq. mi. of California's offshore oil prospects since its first underwater job for an oil company in November, 1953. In that time, the group has logged over 6,000 individual dives.

The possibility of using field geology techniques on the ocean floor was first explored in an underwater survey off San Nicolas Island conducted for NEL and Scripps in 1953. Most of the work on this pioneering expedition was done by the present members of GDC. Once they established that geological mapping could be done underwater, the skin-diving geologists



6 Weird silhouette is etched by a diver as he is pulled through the murky ocean depths in a hunt for rock outcrops. Plexiglass shield on sled protects his face.

story continues on page 16 ⟶

7 Inclinometer is used to measure dip angle of rock. Readings are recorded on a slate (white area by hands) with a pencil.

8 "Like a hummingbird," as one diver puts it, describes how easily these divers work up and down the faces of outcrops.

were quick to see the potentials in contract diving for oil companies.

All the members of the group are "wet men," or divers, and all are stockholders in GDC, which incorporated after about a year of loose partnership.

Business operations are still a trifle loose. When they first incorporated, officers were selected by flipping coins. Corporate titles rotate every six months.

A recent dockside board meeting refused to write off as a business expense a pair of giant flippers presented by two of its members to the Prince of the Tonga Islands at the height of a party ("in what seemed at the time a perfectly appropriate gesture").

A typical work day starts when the representative of a contracting oil company comes aboard a GDC boat. He carries a chart of the general area the company wants explored.

In working with the oil companies, GDC contracts to send a party of three anywhere on the California coast for $600 per day. Unlike coring barges and seismic boats, which operate under various restrictions as to area, the diving geologists can look anywhere.

Arriving at the location chosen by the company, the divers place a buoy and fix the location. Charted shoreline installations usually serve as reference points. If fog obscures the shore, the geologists establish their own base point by dropping buoys into the water. They plot the boat's position from the buoys as it moves to successive points. They return later to establish the position of the marker buoys when the fog has cleared.

GDC divers get their air supply from two 38 cu. ft. tanks carried on their backs. They wear tight-fitting "wet suits" made of neoprene foam.

Air is supplied through the famed Aqualung regulator attached to the twin-tank manifold behind the diver's head. The regulator responds to the slightest vacuum created by the natural breathing operation of the lungs, supplying air until the pressure is equalized, then shutting off. The diver breathes through a flexible rubber hose and mouthpiece. Exhaled air is conducted back to discharge behind the diver's head through a second hose attached to the mouthpiece (pictures).

The neoprene suits help keep the divers as warm as possible at the cooler ocean depths. Surplus Army rifle belts with lead tucked in the cartridge pockets serve as weight belts and as a handy place to attach the few tools needed on the ocean bottom. The underwater outfit is completed when a diver attaches to his feet the largest swim fins available.

Once in the water, the divers head for the bottom as fast as their ears will let them. GDC men dive in pairs, for added safety.

The time it takes to equalize pressure in the inner ear and sinuses is the only factor limiting the rate of descent. By diving in pairs, GDC men take observations separately and compare notes; any discrepancies can be straightened out before the information is sent to the surface for recording. The divers always keep each other in sight—a standard safety precaution for trained divers.

The time spent usefully on the ocean floor—at any working depth—is largely determined by the temperature of the water and by the quantity of air a diver can carry.

The first job of a team on the bottom is to find rock. This isn't easy.

Although the California coast is distinguished by exposed rock formations, finding outcrops under the water can be difficult. Poor visibility is the biggest obstacle (40 ft. is considered good).

GDC has found that one good indication of the presence of exposed rock outcrops is kelp, a sea plant that shows a decided, if not exclusive, preference for rock environment. Certain types of algae also indicate the presence of rock. Another good indicator is lobster pots, which lobster fishermen have learned to leave near rocks.

The outcrops are encrusted with marine life that makes it difficult to determine readily the bedding planes of the rock. GDC divers have picked up some tricks to help them in such cases. For instance, if an abalone is pried loose from a rock, it leaves a cleaned surface on which the bedding planes can readily be seen. Holes occupied by small shellfish, called pholads, that bore into rock also are good places to find clean rock surfaces.

One phenomenon sometimes encountered is that of a very large ledge of hard rock that has been undercut extensively before fracturing off the main outcrop and settling on the sea floor. As the sediments fill in and weathering takes place, these blocks take on the appearance of an outcrop.

"Examined by itself," says Hamilton, "such a block might give you a completely false picture of the dip and strike in the area. We always take several observations around a location

9 Rock sample brought up by divers is bagged and tagged for further study.

to be sure we have an accurate attitude."

Once an attitude is satisfactorily established, the diving geologists take a sample and record the strike and dip on a slate. If in deep water, they then head directly for the surface, where they are met by the boat, which has been following their air bubbles. The man on the boat shoots and plots the position of the attitude. The depth is recorded by an electronic echo sounder.

The divers speed up exploration of the ocean floor by using an underwater sled they designed and built themselves.

The sled is a small wooden frame with a plexiglass shield to protect the diver's head (pictures). Vanes on the side control vertical movement.

The diver holds the sled and is pulled along at speeds up to four knots as he observes the bottom for outcrops. When he spots such an outcrop, he lets go and swims down to take a look. When he drops off, the boat stops and the second diver goes down to join the one on the bottom.

The skin-diving geologists have found that six dives per man is about right for a day's work. Depth is limited to 150 ft.

The divers work in relays. In shallow to moderate depths, two divers make three dives. Then the dry man dons his underwater gear and relieves one of the two below. The relieved diver takes over the topside duties for the next three dives and then relieves the man who has made six consecutive dives. Three more dives complete the traverse.

In deep or unusually cold water, the relay is shortened so that no diver makes more than two consecutive dives. Each diver spends an average 1½ hours underwater per day, or about 15 minutes per dive.

"We've found that this is about as much as a man can do and still feel like doing it again the next day," says Buffington. "Actually, after two days of diving you're really bushed."

The GDC divers try to keep in top physical condition. A head cold can be more weakening to a diver than a broken leg.

Closed passages in the sinuses or the inner ear cause painful pressure differentials when diving and can result in dangerous injuries to ear drums and other tissues if disregarded. Moore found it necessary to have one of his Eustachian tubes enlarged by radium treatment when he found it was taking him too long to equalize pressure going down or up.

The "bends" remain a constant danger to the divers, but none has been stricken in three years of operation. Sharks are another hazard.

To minimize the threat of the "bends," the men always begin their diving at the deep end of a traverse. The following dives thus become progressively more shallow, and a decompression effect is obtained. This practice also puts the hardest dives early in the day, when the divers are fresh.

Though they have seen several sharks, none of the eight has had an unpleasant encounter. They have their own system of dealing with sharks: "We go up and have a cup of coffee," says Stewart.

Having a faceplate kicked off or losing a mouthpiece do not rank as hazards to these divers. They have been completely schooled in meeting all kinds of equipment failures at depth. If a man's air is completely cut off at any depth, he knows how to share breathing apparatus with his partner, or how to head for the surface, emitting air from his lungs as the pressure decreases.

"The most important thing is good training," says Menard. "There isn't any hazard if you are completely familiar with your equipment and know how to meet every type of emergency. No one should dive at all unless he is trained."

In addition to submarine geology, GDC does various types of underwater work for non-oil companies and for some municipalities.

The group presently is working on a two-year survey of ocean conditions in connection with the location of a proposed sewer outfall for the city of San Diego. They also are surveying coastal bottom conditions for the proposed location of a new trans-Pacific telephone cable.

The geologists have inspected sewer lines for the city of Los Angeles and Orange County Sanitary District. While this work may appear below the dignity of a Ph.D., it can be enjoyable. "One of the nicest dives I ever made was inspecting the Orange County sewer outfall," Hamilton recalls. "But on the way home I decided it would be useless to try to convince anyone that it was."

But the GDC scientists prefer to do work where they can use their specialized knowledge of marine geology.

Since it does work for several oil companies in the sharply competitive shore field, GDC is especially careful not to leak any information.

The diving geologists cannot reveal who they have worked for, or where. They are careful to omit all references to firms when discussing their work.

GDC maintains no records of its geological work. At the end of a day's diving, the oil company representative goes ashore with the only map made and all the rock samples. GDC has been paid to map some areas two and three times.

And though the eight have done most of their diving in the Pacific, they make it clear that they'll go anywhere in the world—so long as the offer is right.

BILL CLINKSCALES (left) . . .

gets ready to go underneath with GDC divers to photograph story exclusively for Petroleum Week. Clinkscales took up diving and got a special camera (picture) when he saw the possibilities of extending his range as a freelance photographer.

Previous underwater jobs Clinkscales has done include photographing octopi in their natural habitat and the mating habits of whales.

Clinkscales made six dives to shoot these striking pictures.

ROTARY TABLE, power slip, drillpipe, lie ready for speedy delivery as . . .

Use of Rental Equipment Rises

There's a growing trend toward the use of more rental equipment in the oil fields.

The growth not only is onshore but also offshore, with rentals varying from the 1¢ per ft. per day paid for drillpipe to the thousands of dollars per day for offshore rigs.

The trend has become quite pronounced in the drilling segment of the industry.

The biggest demand for rental items in the majority of oil-producing areas is for drillpipe and drill collars.

One of the greatest advantages in renting is its convenience.

This point was sharply brought into focus by Z. C. Ambrose, assistant president of Associated Oil & Gas Co., Houston, whose oil rentals division is the largest in the industry.

"The equipment is there when the companies need it. A major may have a string of pipe in Houston and need it in Wyoming. It's a lot cheaper to use our equipment than to haul pipe all the way up there."

Associated has 11 rental yards altogether, in Texas, New Mexico, Wyoming, Oklahoma, and Louisiana. It is building a twelfth one at Morgan City, La.

"It's impractical for every contractor to carry a complete line the way we do," says Ambrose.

Associated is one of dozens of rental companies operating in the nation.

A spokesman for one rental company located in the West Texas area says, "Ten years ago there were only one or two major rental firms in the whole Southwest. But now the competition is terrific."

There's more to the growth of the rental business than just the convenience. Drilling contractors and some companies report it's often cheaper to rent tools than to buy and try to maintain them.

Summing up the opinions of several drilling contractors is Ted Houck, West Texas division drilling superintendent for Parker Drilling Co., now operating 19 rigs in West Texas:

"We're using more rental equipment than ever before, particularly casing and tubing tools. Maintenance is one of the big advantages of renting, since that would just create another department and another headache for us. Too, rental companies pick up and deliver the tools, which relieves us of another big worry."

Out in California, several companies have sold off all of their drilling equipment and rent everything required for that end of the business.

Al Hilton, district superintendent for Union Oil Co., says, "We rent everything in regard to drilling. A few years ago the company had its own drilling department—own tools, own yards and own personnel. The cost was monstrous."

Another large company operating in California has gotten rid of everything in the way of drilling equipment within the last six years. Now it can warehouse supplies for one entire division in a single building.

This same company reports that renting has decreased costs tremendously.

The situation in California is no different from that in the rest of the country. Others have found it more economical to rent than tie up a lot of money in such a variety of tools needed in drilling today.

For example, drilling of one well might require the setting of 13⅜-in. casing, while another will require 9⅝-in. pipe, and perhaps 8⅝-in. or smaller pipe will fill the bill for a third.

Each of these jobs would require a different set of tools for running the pipe. This means that the availability of rental tools eliminates the necessity for a company or contractor to keep tools around for use only once or twice a year.

An Associated official in West Texas points out that it also is good business on the part of a company to rent drillpipe needed only occasionally.

"For example," he says, "on a 10,000-ft. well, new 2⅞-in. drillpipe would cost the operator or contractor about $3.50 per ft. We rent the same size pipe on a minimum five-day basis for 1¢ per ft. per day, enabling the operator to finish up the job in three or four days for a $500 rental charge."

The same official noted that most drilling rigs in West Texas will inventory at around $100,000 to $150,000. But if they were equipped with all the accessories and tools needed throughout the year, the cost likely would run well over $1-million.

The rental business actually started with renting of tools to perform specialized jobs when needed.

One of the specialized requirements was in blowout preventors.

Gene Reid of Gene Reid Drilling, Inc., Bakersfield, Cal., says it "would cost $250,000 to stock what you'd need in the way of blowout prevention equipment. We don't have money to tie up that way."

Art Heiser of Green & Heiser Drilling Co., another contractor in California, concurs.

He says that it would require at least $30,000 in equipment to satisfy a major company on blowout preventors.

There are some disadvantages to renting, in the opinion of some contractors.

The official of one firm points out that rental equipment probably keeps smaller companies from buying equipment they actually need.

Another official contends that

through renting "you never are increasing your net worth."

One major objection is the possible risk involved in using rented equipment.

These people feel there may be greater danger that rented equipment might break down under high temperatures and pressures on deep wells. They believe there is less chance of a breakdown with new equipment.

Ambrose has a ready answer for this objection. He says, "The company renting equipment can be sure it's in good condition. We repair and clean equipment every time it comes into the yard.

"For example, we tuboscope our pipe each time. If the pipe is too thin or is stretched, we throw it out.

"We steam-clean pipe and apply rust preventive. This coating also keeps the tool joints free of wind-blown sand which might damage the threads.

"Our blowout preventors are completely torn down, repaired and tested each time."

Stanolind Is Denied Gas Injunction Plea

A federal court in Tulsa last week closed one route of relief from Federal Power Commission curbs on interstate gas producers.

The road was blocked when U. S. District Judge Royce H. Savage dismissed a Stanolind Oil & Gas Co. injunction suit against the federal government. His reason: The government had not given its consent to be sued.

Consent in the Stanolind case, the judge said, could not be found in the federal administrative procedures act, as contended by the company.

The court further ruled that Stanolind has not yet exhausted its administrative remedies.

Stanolind's suit sought to enjoin the government from enforcing FPC order Nos. 174-A and 174-B. These orders, in effect, give FPC the power to regulate prices for gas handled by operators if that gas eventually finds its way into interstate commerce.

All other suits to date have been brought by individual operators against FPC. When FPC rules adversely, relief can then be sought through the U. S. Circuit Court of Appeals.

Stanolind has 60 days in which to appeal the court decision. Whether it will do so was undecided. But observers point out that gas producers have been getting some adverse decisions in other cases through the circuit court, so Stanolind may decide to give up the fight as "not worth the effort."

In the fabulous Mid-Continent oil and gas area, Joe Roughneck does a bigger and better job year after year. Joe is the very heart of the industry . . . the composite spirit of the courageous men who invest time, money, and skill to find and produce the energy-fuels so vital to industry, national defense and the public. Joe's neighbor . . . Lone Star Steel . . . makes and delivers API casing, tubing, and line pipe for Joe's special convenience.

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

Gulf Oil Seeks New Depth Record in Texas

Gulf Oil Corp. is shooting for a new depth record in Texas.

It has re-entered its No. 1-A P. G. Northrup et al, previously abandoned wildcat in Reeves County, 20 mi. northwest of Ft. Stockton.

When quit in December, 1954, the No. 1-A Northrup was bottomed at 18,609 ft. Gulf now proposes to deepen it to 19,200 ft. This would be 140 ft. deeper than Texas' deepest test, Magnolia Petroleum Co. No. 417-A West Ranch, a failure at 19,060 ft. last year. The latter is in Jackson County on the Gulf Coast.

•

The Independent Oil Well Cementing Assn. of America has been formed.

The purpose is to help companies keep pace with the latest developments and to share technical advances. Boyd Brazeel, Graham, Tex., is the first president.

•

Richfield Oil Corp. has been awarded 26 leases of 2,500 acres, each, in the Moose reservation on Kenai Peninsula, 25 mi. southwest of Anchorage, Alaska (PW—Jul.27'56, p10).

Richfield has worked out a unit agreement with Ohio Oil Co. and Union Oil Co.

Three other leases awarded went to individuals, while two leases were held up for more information from applicants.

The development will be known as the Swanson River Unit Area.

The lessees have posted $100,000 bond each to abide by the unit agreement.

•

Fargo Oils, Ltd., reports it has received $1,350,000 from General American Oil Co., Dallas, for use in intensifying development in northeastern British Columbia. Fargo has substantial gas reserves in that area. The money also will be used in an effort to develop additional sources of light oil in Alberta.

Fargo is the western Canadian affiliate of General American.

The sum was for 900,000 shares of Fargo at $1.50 a share and is in exercise of an option. Still under option are 1-million Fargo shares at $1.50 a share, exercisable until Jan. 14, 1963.

•

Akron Gasoline Co., Denver, is building a $450,000 natural gasoline plant nine mi. west of Akron, Colo.

The plant will extract propane, butane, and natural gasoline from casinghead gas produced in the area, mostly from the Xenia West field.

Satellite stations at outlying fields will perform on-the-spot stripping, and the liquids will be trucked to the main plant for further processing and sale.

•

Stanolind Oil & Gas Co. has filed application with the New Mexico Oil Conservation Commission for permission to complete a well in the Hogback-Dakota field of San Juan County without the use of producing tubing. Stanolind proposes to utilize 3½-in. tubing as the production casing string.

•

The engineering laboratory and office facilities of Schlumberger Well Surveying Corp. will be doubled through the construction of a two-story building.

Unique among the facilities planned is a high pressure testing laboratory, where conditions of heat and pressure equal to those found in a 30,000-ft. oil well can be duplicated.

•

An increase in production from 190 b/d to 2,200 b/d within one year is expected to result from a waterflooding program in the Lehn-Apco field of Pecos County, Tex.

Tekoil Corp., Dallas, plans to start the waterflood program in one well, with the increase to 2,200 b/d not expected until it has expanded to the entire field.

•

Drilling Highlights

Oklahoma—A fifth pay zone has been added in the West Cement field of Caddo County at Amerada Petroleum Corp. No. 1 Leazenby, section 19-6n-10w. The new zone is the Yule (Pennsylvanian), from which the well flowed 15 bbl. of oil in 15 minutes on drillstem test from 6,510-53 ft. This well previously has opened the Rowe zone to production in the field, which already had one oil and two gas pays.

Nebraska—Superior Oil Co. No. 46-6 Stephens, section 6-4n-30w, has been completed as the second well in the recently opened Barger (Pennsylvanian) pool in Red Willow County. The well was gauged on the pump for 194 b/d from pay at 3,844-52 ft. The discovery in this field was the first in the Cambridge Arch area and extended production 100 mi. east from the Panhandle area of the state.

West Texas—A discovery from the San Andres lime has been completed 5½ mi. northwest of the Cochran multi-pay area in Cochran County. Completed was J. W. Murchison No. 1 Frost, section 8, block W, psl survey, which gauged 124 b/d through ¼-in. choke and perforations at 4,950-80 ft. Gasoline oil ratio was 200-1.

Louisiana—Trice Production Co. et al report a new oil discovery near the East Bel City field in Calcasieu Parish. It's No. 1 Derouen, section 35-10s-6w, was estimated good for 200 b/d on test through perforations at 10,925-30 ft. The discovery is 4,500 ft. east of the one well in the East Bel City field, productive since 1948.

Montana—Continental Oil Co. will drill a 7,800-ft. wildcat to the Cambrian in the Southeast Bascomb area of Rosebud County. It is eight mi. south of Northwest Sumatra and three mi. west of the only previous drilling in the area.

North Texas—British-American Oil Producing Co. has a new Strawn oil discovery in Grayson County at No. 1 Degan, B. S. Nounan survey abstract 903. The well was completed on the pump for 158 b/d of 34.5 gravity oil through perforations at 3,801-15 ft.

Correction

The number of oil fields discovering 25-million to 50-million bbl. of oil should have been 19 instead of 82, as erroneously stated in an article appearing recently (PW—Aug.24'56, p14).

DU PONT
PETROLEUM CHEMICALS DIVISION
NEWS
DU PONT

September ★ One of a Series of Bulletins for the Petroleum Industry ★ 1956

Question Box

1. ARE YOU RECEIVING shipment of additives in drums in less than carload lots?
   If so, you will certainly want to read about the four-figure savings you can realize by simply revising your ordering schedule. See article at right.
2. HOW MANY different economy-grade diesel fuel problems can you lick with a single additive?
   In the article below, you may be surprised at how much one additive can accomplish for you.
3. WHO at the Du Pont Petroleum Laboratory can help you make the most efficient use of gasoline additives?
   Read about him on the next page.
4. HAVE YOU called in a doctor recently—for helping your TEL blending personnel maintain their high standards of *safe* living?
   You can find out about this unique Du Pont medical service on the next page.

To help you overcome economy diesel fuel problems

Has the growing demand for economy diesel fuels created new problems for you? Three of the most common problems encountered by refiners are:

1. Incompatibility
2. Instability
3. Sparking tendency

Du Pont Fuel Oil Additive No. 2 (FOA-2) offers you a solution to all three.

It can help you gain the needed refining flexibility by making it possible for you to blend catalytic-cracked stocks with straight-run products, and overcome the incompatibility problem.

Stabilizer and dispersant

In actual railroad service, the stabilizing and dispersant action of FOA-2 has proved highly effective for reducing the tendency of many economy-grade diesel fuels to cause filter-plugging and injector-sticking.

How much can you save by ordering Du Pont additives in tank-car lots?

Refiners can save considerable money by ordering Du Pont additives in tank-car lots. For example, 4,000 gallons delivered in a tank car, rather than in drums in less than carload lots, will save the refiner between $1,680 and $2,400, as shown in this table:

ADDITIVES	GULF COAST		MID-CONTINENT		WEST COAST	
	$ Saving	% Saving	$ Saving	% Saving	$ Saving	% Saving
Du Pont Antioxidant No. 22	$2,250	6.7%	$2,250	6.7%	$2,400	7.0%
Du Pont Fuel Oil Additive No. 2	$1,680	8.3%	$1,710	8.4%	$1,850	8.9%
Du Pont Lube Oil Additives	$1,830	12.0%	$1,860	12.0%	$2,000	12.5%

Because of the difference in freight rates, the actual dollar savings vary according to the location of the refinery receiving shipment. But no matter where your refinery is located, you will find the savings decidedly worthwhile.

How much can YOU save?

To give you the exact figures, one of our nearby representatives

OVER

Locomotive sparking, a problem which is sometimes accentuated with economy fuels, results from the formation of carbon deposits – generally during idling or while coasting downhill. The ejection of these deposits when glowing, and the resulting fire hazard, may occur during runs under heavy load.

A metallic additive is likely to aggravate this situation by increasing the size and cohesiveness of the carbon deposit particles. Field tests show, however, that an *ashless* additive does not contribute to the sparking problem. Rather, it tends to minimize it.

Du Pont FOA-2, therefore, being an *ashless*, nonmetallic additive, can help you reduce any sparking tendency in economy-grade diesel fuels.

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PETROLEUM CHEMICALS DIVISION
NEWS

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CONTINUED *Tank-car lots*

will be glad to call at your refinery, study your freight rates and inventory patterns. He will then determine the most convenient handling method for you and figure the exact saving you can make. You can write, wire or phone him at our nearest sales office listed below. Why not do it now?

IN ADDITION to the dollars you save on the delivered cost of the additives, you can save on handling costs by receiving additives shipments in tank-car lots.

LABORATORY GROUP HEAD

In number of miles, the distance between Havertown, Pennsylvania and Wilmington, Delaware is not far, unless, as Harold Scheule did, you go by way of Bartlesville, Oklahoma.

Scheule, who is supervisor of the Gasoline and TEL Group at the Petroleum Laboratory, was born in Havertown in 1921. Following his graduation from Bucknell University in 1943, with a B.S. in Chemical Engineering and a Phi Beta Kappa key, Harold joined the Bartlesville staff of Phillips Petroleum Company, where he remained until 1946. Since then he's been with Du Pont at the Petroleum Laboratory.

His professional affiliations include membership in the American Institute of Chemical Engineers and the American Chemical Society. He is also active in the Coordinating Research Council.

HAROLD J. SCHEULE

Du Pont medical representatives teach safety as a way of life

Hurrying back and forth across the country, and traveling overseas, too, Dr. Stewart L. Rankin covers more than 50,000 miles a year. In the course of his travels, he has firmly impressed upon more than 20,000 refinery workers his famous slogan, "Safety is a way of life!"

DR. RANKIN is shown at right with Doctors Fenton Russell (left) and L. A. Gerlach, all of the Du Pont Medical Division.

His talks on safety are part of a unique medical service which Du Pont, as a supplier of tetraethyl lead, makes available to the oil industry. In addition to the talks, Dr. Rankin and his medical associates work closely with refinery managements, physicians, supervisors and blenders to help them maintain the very finest health and hygiene programs. Practicing *preventive* medicine, the Du Pont doctors will tell you emphatically that their greatest ambition is that they *never* have to treat a case of lead poisoning.

To help them achieve this ambition, we hope you will feel free to take advantage of their services – often!

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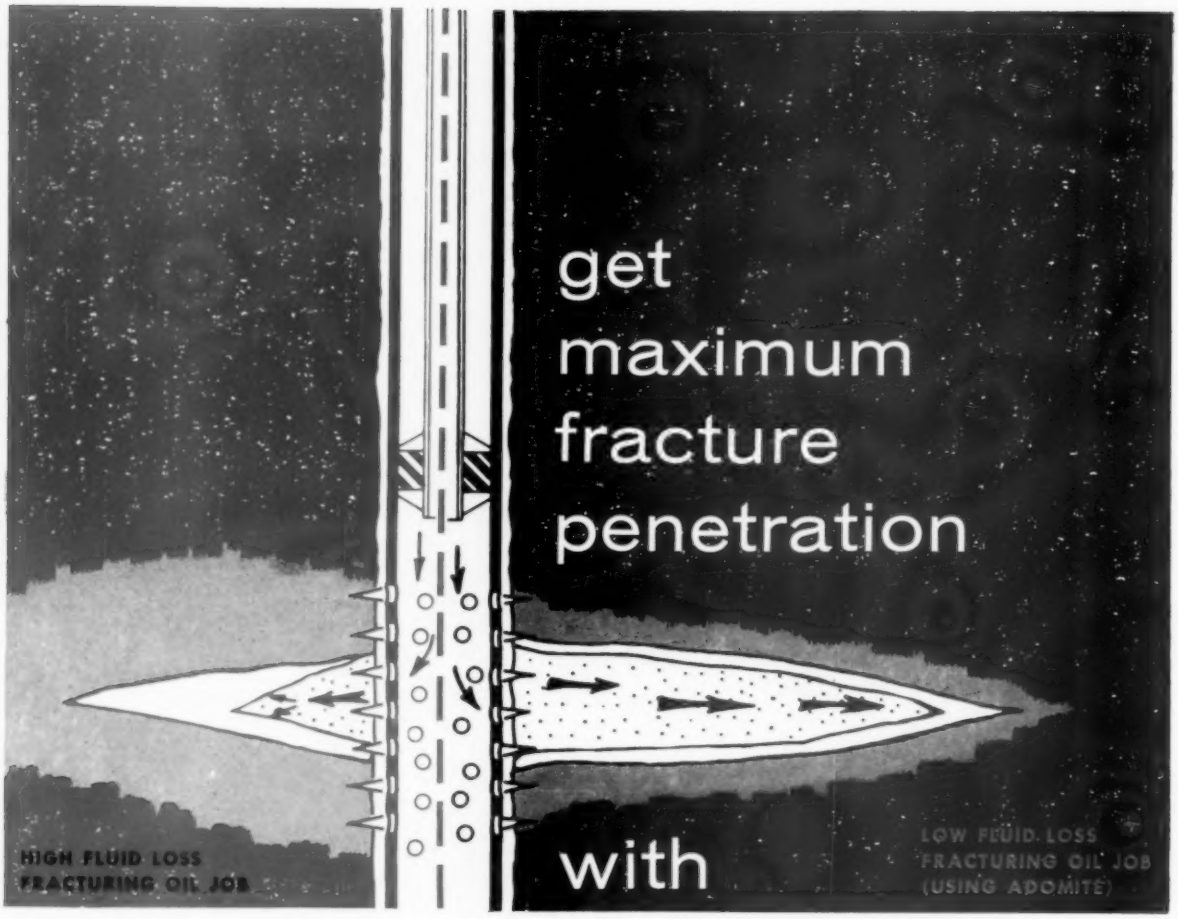

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Seals the fracture face . . . minimizes fluid loss . . . no damage to formation.

Longer fractures . . . deeper penetration of sands.

Fewer sandouts . . . reduces fluid loss in rock matrix, prevents buildup of sand concentrations in the fracture.

Saves you money . . . utilizes your own lease crudes . . . saves transportation costs.

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Reduces hazard of emulsions . . . emulsion-breaking characteristics are important consideration to many producers.

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How Many Cars Will Need Higher Octanes?

Compression ratios of new model cars tell only half of the story of octane requirements. The other half of the story of interest to most oil men is the number of new cars on the road that will require higher octane motor fuels.

Figures for recent years show that from 6% to 9% of the cars on the road are less than one year old, and from 16% to 19% are models under two years of age.

Percentages for the 1956 and 1957 model years will lie within those ranges. And while it is difficult to spot the percentages exactly, it looks as though the figures in each case will be near the top of the two ranges.

By the middle of 1957, about 8.5% of the passenger cars cruising the highways should be less than a year old. And around 19% will be less than two years old.

In terms of actual numbers, based on recent trends, up to 5-million out of a possible 54-million cars in use by mid-1957 should be "new" cars. About 10-million will be less than two years old.

Not all of these cars will require the highest octane motor fuels. But a substantial number of the owners of these 15-million cars under two years of age will be searching out the highest octane pumps to get the most out of what they have under the hoods of their cars.

* * * *

Detroit's estimates of total 1957 production range from 6.5-million to 7.2-million passenger cars. The most likely suggested figure would probably be 7-million, or a bit more.

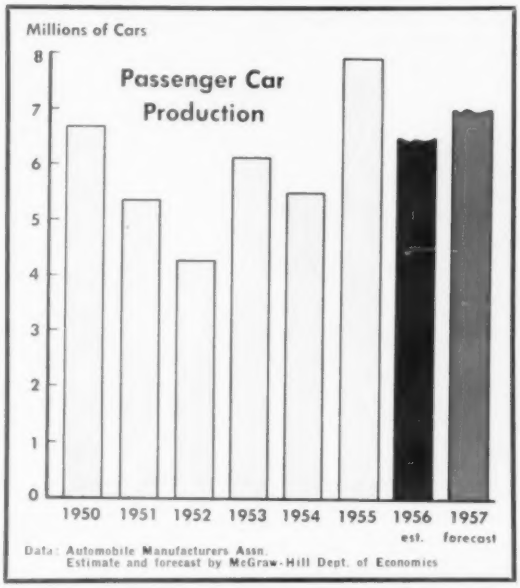
The accompanying chart shows what the auto industry has produced in the way of passenger cars since 1950—together with estimates for this year and next. Clearly things boomed in 1950, slumped through 1951 and 1952, rebounded in 1953, slipped in 1954, and zoomed last year to an all-time high. The current year and 1957 won't be too bad—except by comparison with 1955.

* * * *

The new 1957 models to be ushered in during the fall months will figure in the fourth quarter production figures. But they won't figure as high as they did last year.

The auto industry just now is licking the wounds it suffered in 1956 and laying plans for what it hopes will be a better year in 1957.

One mistake it plans to avoid is not to push output of new models so fast in the fourth quarter. It did that late in 1955. And by early spring this year, production had to be curtailed to prevent inventories from getting entirely out of hand.



MORE NEW CARS probably will be built in 1957 than in any recent year except 1955. That fact is important to the oil industry as it gauges future gasoline needs.

Detroit now plans to turn out 1.6-million passenger cars in the fourth quarter of this year—17% less than was produced in the final quarter of 1955.

The cutback does not reflect a lack of faith in the new models. Most makes have been changed drastically, stylewise. And the manufacturers expect they'll sell like hotcakes.

But the auto industry says it's going to be more cautious in production plans. The makers hope to bring about a return to a sellers' market and keep output steady through the first and second quarters of next year. They want to avoid a possible "summer slump" in February and March.

* * * *

It may not be possible to meet the year's production estimate of 7-million-plus passenger cars, and especially the 1.6-million units planned for the 1956 fourth quarter. There are spot shortages of steel. And there is always the chance that "production kinks" will show up as a result of the wide range of changes planned for the new models.

Then, too, sales figures may not be as good as expected. A too-tight money market could cut sales, which have depended heavily on credit in recent years.

MAN! Do we have connections!

Whether it is for automobiles, swim suits or natural gas, the major markets are where the most people are. Transco distributes natural gas to more than sixty distributing companies, serving many millions of people from Alabama to New York.

Producers of natural gas can have confidence in the steady demand of these major markets — in which we presently have an impressive number of connections and are constantly working to increase them!

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DEPT/Transportation & Storage

Talking Tanks to Get New Voice

Paper-disc records will be tried out in a storage tank telemetering system. They're less complicated and cheaper than present tank "tonsils."

Great Lakes Pipe Line Co. is convinced that talking tanks are advantageous—and that they can be improved.

Great Lakes operates more than 5,000 mi. of products pipeline serving the Midwest. There are four talking tanks on one of the feeder lines in this system. They're at Coffeyville, Kan.

When the pipeline station operator at Independence, 15 mi. away, wants to find out the level of any one of the four tanks, he dials a telephone number for that particular tank. Almost immediately, a voice gives him the answer. It might be something like this: "Three one feet six and five-eighths inches."

The message can also be relayed to the chief dispatcher's office in Kansas City, Mo. (some 200 mi. away), or to anyplace with telephone service.

The present talking tanks are about three years old. They're an offshoot of step-type, electronic gauges that Great Lakes installed back in 1938.

The gauges work like this: As the tank float rises or falls, it turns a sprocket atop the tank. This sprocket, connected to a transmitter, acts like a selector switch. It determines which four out of 35 cables leading out from the transmitter will be energized. The cables are connected to a panel of numbered lights. At every eighth-inch "step" taken by the float, the line-up of lights changes (this can take place automatically at periodic intervals, or at selected times).

This, in itself, is a telemetering system. But it's limited to a few thousand feet—the range of the transmitter.

To get long-distance telemetering, Great Lakes added a series of electrical relays, a stepping switch, an amplifier, and a magetic drum with synchronous motor to the panel indicator of the gauges.

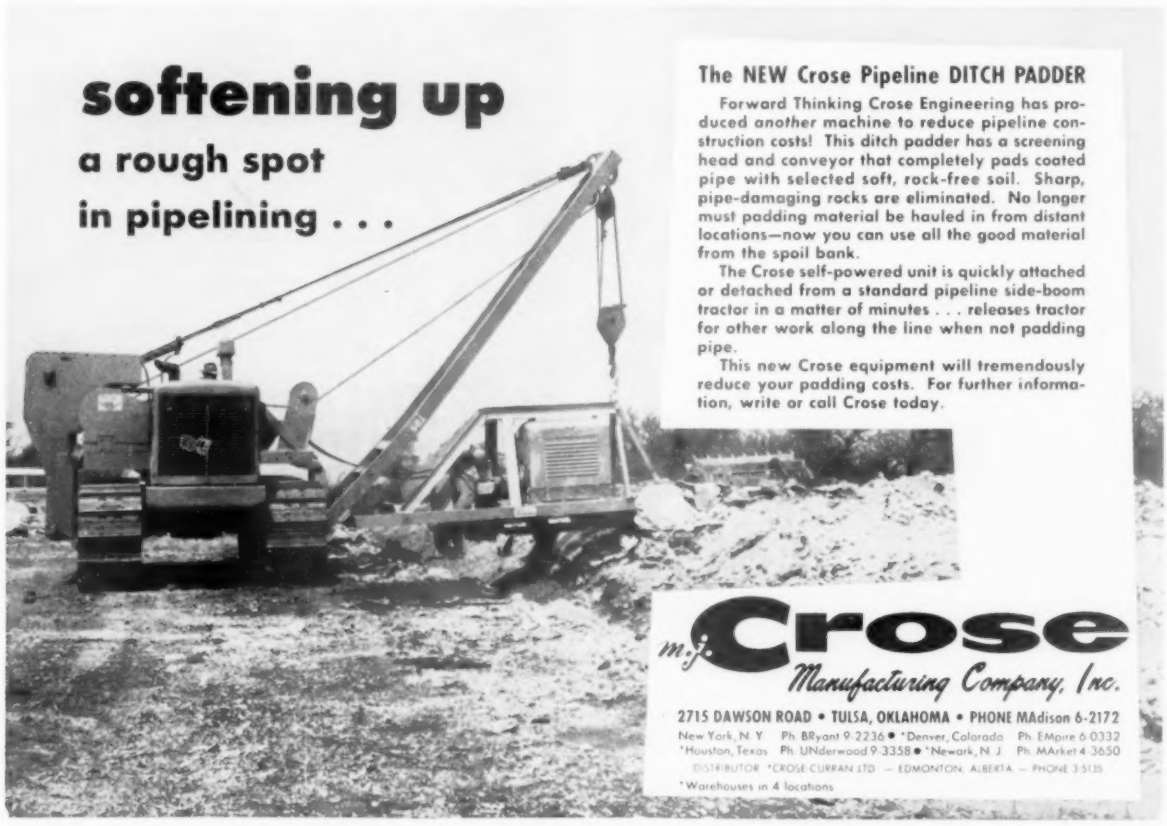
As the panel lights are energized, so, too, are corresponding pick-up arms along the length of the 9-in. by 10-in. drum. The drum has 16 words recorded on its surface: the numbers "one" to "eleven," and the words "feet," "and," "eighths," and "inches."

It takes only eight of these words to give the level of any tank. And it takes only eight revolutions of the drum, which moves at 72 rpm.

The company still swears by these original installations.

The advantages of the system include the big attribute of any reliable, remote-reading method: reduced manpower. Where gaugers are used, union regulations usually require four men on a 24-hr. shift. With telemetering, the station operator or dispatcher handles the job.

Aside from reducing manpower, however, the voice system gives faster, more direct information than most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The NEW Crose Pipeline DITCH PADDER
Forward Thinking Crose Engineering has produced another machine to reduce pipeline construction costs! This ditch padder has a screening head and conveyor that completely pads coated pipe with selected soft, rock-free soil. Sharp, pipe-damaging rocks are eliminated. No longer must padding material be hauled in from distant locations—now you can use all the good material from the spoil bank.
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pulse systems. In the latter, it takes a long accumulation of pulses to signal the level of liquid in a tank (384, for example, to indicate 4 ft.). Then the number of pulses must be converted to feet, inches, and fractions. A typical reading might take 37 seconds, with the pulse system, whereas the Great Lakes system gives results in about 6 seconds.

Furthermore, there's no extra channelling involved.

The company is just as proud of its talking tanks today as it was when the system was demonstrated in Tulsa in 1953 at the International Petroleum Exposition.

Great Lakes feels that the cost of its telemeter voice can be cut about 60% with paper-disc records. These will be tried out on two tanks at another location, to be specified by the company within a short time.

The disc system, in addition to being less expensive than the drum, will be less complicated in that only one pickup arm will be required.

"The new set-up will be very similar to robot telephone-answering devices," says a company spokesman, "except that the conventional robot responds with a fixed message. Our device will be able to select from a wide range of possible messages."

What's New / IN TRANSPORTATION

Three 60,000-ton tankers, to be built in a U. S. yard, are slated to join the future fleet of mammoth oil carriers.

Newport News Shipbuilding & Drydock Co. announced last week that it will start building the three vessels next year for Barracuda Tanker Corp.

Barracuda was not identified further. But PETROLEUM WEEK learned that Union Oil Co. of California will charter the tankers.

There are also these other orders to be added to the growing table of big tankers under construction contracts (PW—Aug.24'56,p20):

London & Overseas Freighters Co., one 40,500-ton tanker, to be built in Sweden; Tidewater Oil Co., two 45,000-tonners to be built in Japan; George Petrianides, two 45,000-tonners to be built in Germany.

The list of tankers now on order of more than 40,000 tons each, therefore, stands at 77—for a total of 3,477,220 tons. And it was only three years ago that the first tanker of this size was launched.

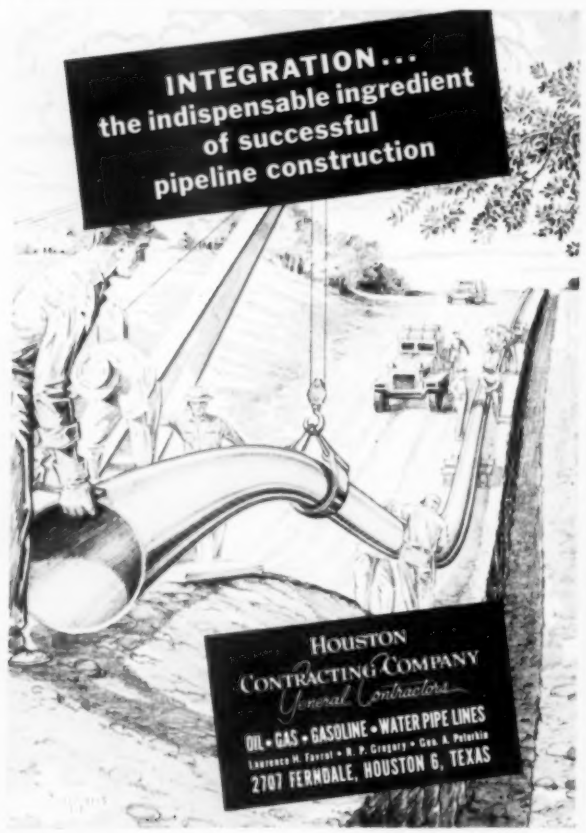
Railroads will have to wait at least seven months before finding out whether or not they can charge higher rates for freightcar demurrage (PW—Aug.10'56,p37).

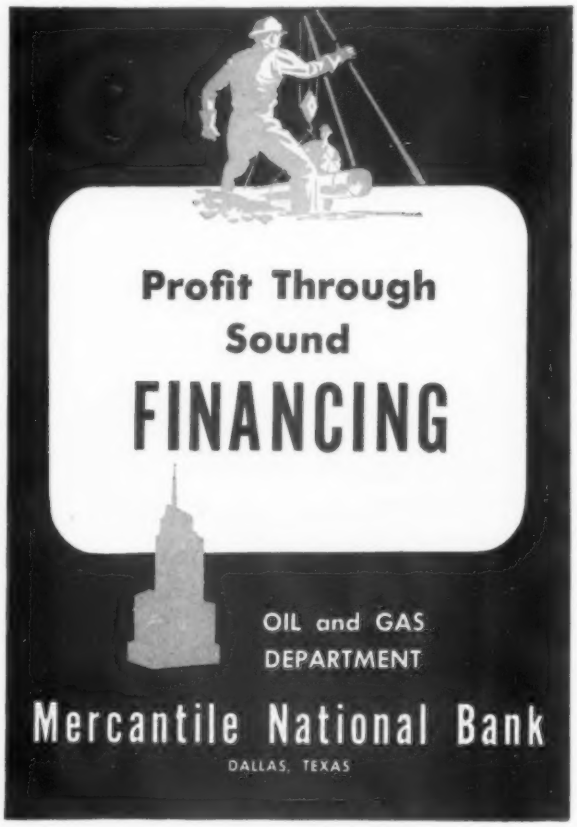
The Interstate Commerce Commission said it had received 470 protests against the railroad proposal. ICC says it will investigate the situation, and possibly hold public hearings. Meanwhile, the railroads must continue present demurrage rates until March 31.

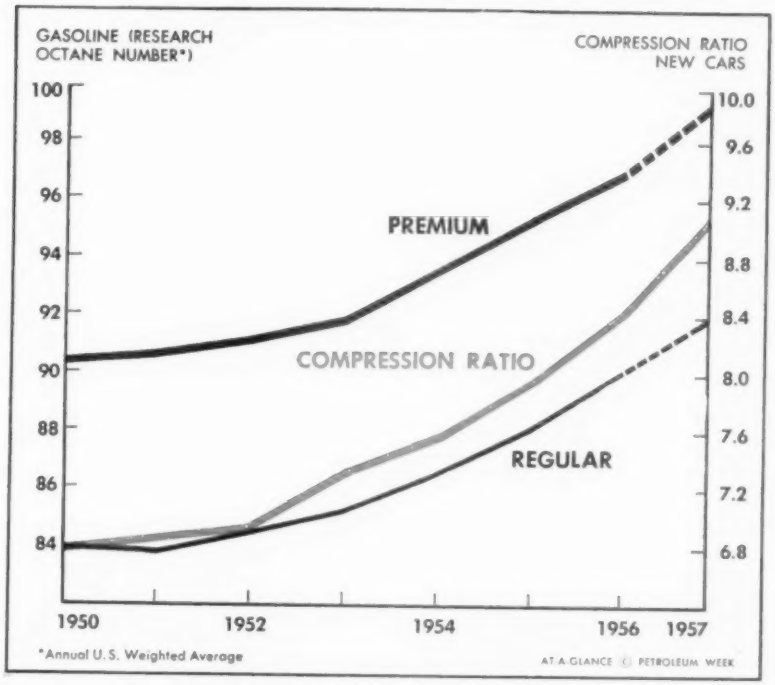
•

Interstate natural gas pipelines are expanding fast. The Federal Power Commission reported last week that it had authorized almost 4,400 mi. of new line in the year ending June 30—plus approximately 255,000 additional horsepower for compressor stations.

El Paso Natural Gas Co.'s plan to add 413 mi. of 34-in. main line loops, 132 mi. of miscellaneous laterals, and 60,610 hp. was listed as the largest single project approved by FPC.







BIG BOOST in compression ratios of 1957 model cars means . . .

Big Octane Jump Coming

Gasoline octanes are going to take another big jump next year. By mid-year 100-octane premium fuel will be sold in nearly every part of the nation.

That's the consensus of refiners across the country gathered by PETROLEUM WEEK this week.

Premium-grade motor fuel octanes across the country will average 98.5 (research) and regular-grade gasoline will run 92-octane, a survey of refiners shows (chart). This compares with the current nationwide average of approximately 97-octane premium gasoline and 90.1-octane regular grade.

The East Coast and Gulf will continue to sell the highest octane motor fuels. It now appears that premium octanes in these two regions will average 99-octane, up 1.5 over 1956.

The Midwest will have an average premium octane of 98 next year, the Rocky Mountains, with lower temperatures and lower atmospheric pressures, a 97-octane premium, and the West Coast a 97.5-octane premium.

Also, the survey shows, the spreads between average premium and regular grade octane numbers will widen a little. In the East it may increase the difference from seven octane numbers to eight.

In the Midwest, next year's margin between the two grades will probably increase by nearly two octane numbers to nine.

On the West Coast, where the octane spread is the greatest, it will remain about the same, at 10 octane numbers on the average.

The substantial increase in compression ratios of 1957 model cars, together with greater competition among refiners and marketers to offer highest octane fuels, are the factors influencing next year's big boost in octanes.

An analysis of the 1957 model automobiles compiled by PETROLEUM WEEK (page 9) shows that compression ratios will leap ahead to a weighted average of 9.14:1, the largest year-to-year increase in the auto industry's history.

Nearly 63% of the new models will be in the 9:1-10:1 compression ratio range. About 9% of the 1957 cars will have a compression ratio between 10:1 and 11:1. Interpreted in terms of motor fuel requirements, the larger volume of higher compression engines now planned means that premium-grade gasoline will be needed by 57.9% of the new models. For the 1956 models (70% of which are in the 8:1-9:1 compression ratio range), only 39.8% require premium motor fuel.

In the long run, competition may be the most important influence on higher octane ratings. It could mean even bigger increases in octane than are now expected.

A refining department official of an integrated company on the West Coast contends that "an increase in compression ratios doesn't necessarily mean octanes have to be increased." But he quickly adds: "If our competitors market a higher-octane fuel, we will follow the parade."

Another West Coast company official predicts that "competitive pressures, not motor design, will be the major factor" behind next year's octane race.

A vice-president of a large Mid-Continent company calls the situation a "mess" right now. "We know what we should do in the way of premium and housebrand octanes to meet the needs of next year's cars," he notes. "But we don't know what a couple of our biggest competitors are going to do. As soon as we get wind of their plans for gasoline octanes, then I can say what we will manufacture and sell."

However, one leading oil company official argues that next year's 98.5-octane gasoline will "fully satisfy" only about two-thirds of the 1957 model engines. He defines the term "fully satisfy" as meaning complete elimination of knock.

The present competitive situation between refiners and marketers is more complicated than usual. It involves both octane ratings and how many grades of gasoline should be offered.

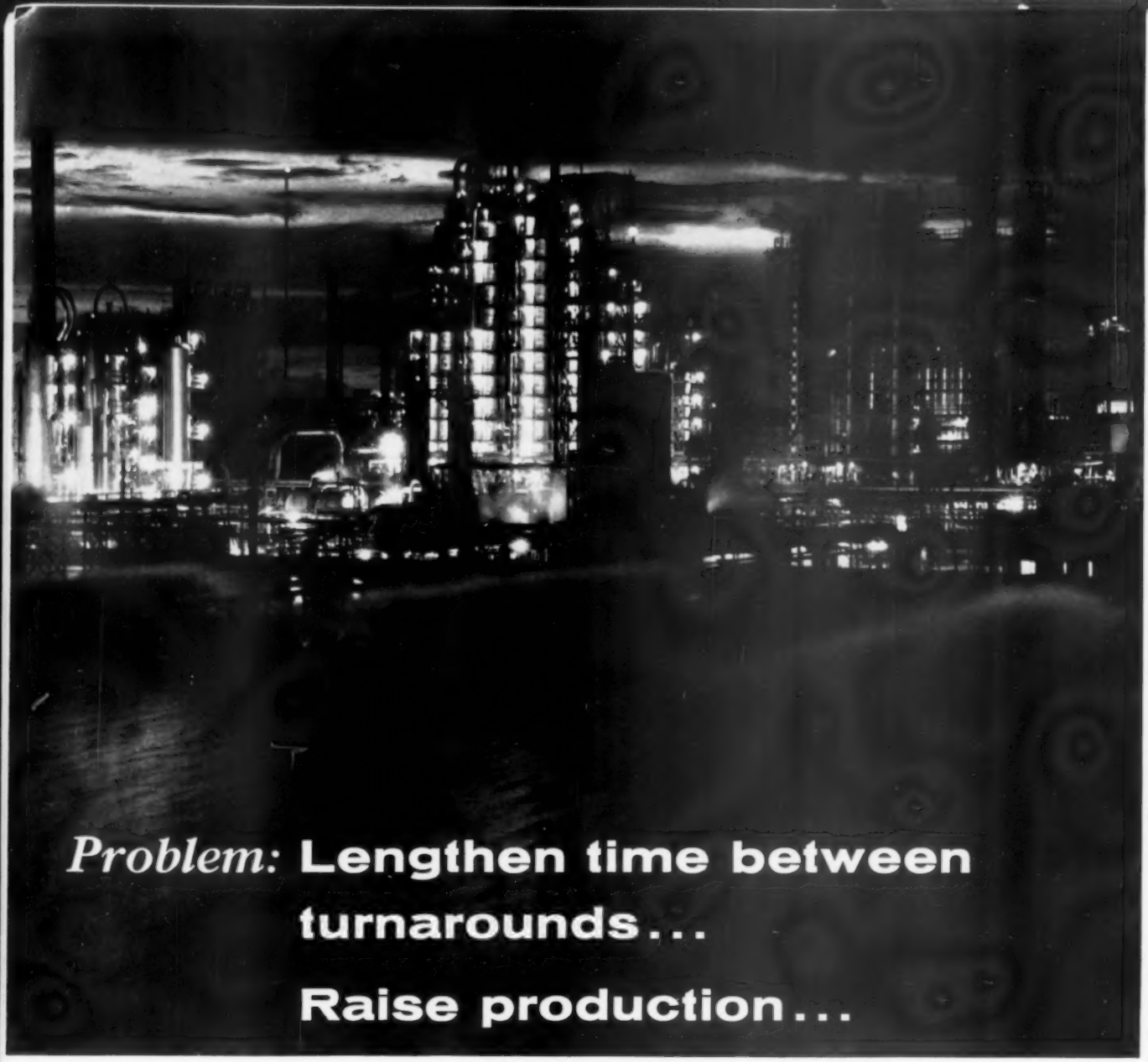
Sun Oil Co.'s revolutionary five-grade experiment, still under test in Florida, started the multi-grade controversy (PW—Feb.24'56,p11).

Esso Standard was the first to make a basic change through a wide area. In switching to a three-grade system, it introduced a 100-plus octane premium (PW—May4'56,p11).

Several companies have followed Esso's lead by shifting to a three-grade system, or at least experimenting with that system. These companies include Humble, Standard of Kentucky, Continental, Cities Service.

An equally impressive group of companies, including Shell, Socony, Pure, and more recently Sinclair, have publicly announced plans to stick with the two-grade system.

Of the largest companies, Texas, Gulf, Indiana Standard, and California



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Solution: Ljungstrom® Air Preheater

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That's why four of your present processing units can do the work of five. With Ljungstrom Air Preheaters each unit's output can increase as much as 25%. Example: One pipe still in an eastern refinery went from 12,000 barrels to 18/20,000 barrels after application of a Ljungstrom.

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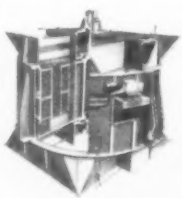
Ljungstrom has many other advantages. You save up to 20% in fuel... furnace design is more economical, with no need for convection surfaces... many fuels you used to throw away can be used... through-put is consistently improved... product quality is higher. You can see, therefore, why a Ljungstrom is paid out in nine months or less.

For more complete details on what the Ljungstrom Air Preheater can do for you – for an analysis of the heat recovery benefits attainable in fuel burning equipment – call or write The Air Preheater Corporation.

Wherever You Burn Fuel, You Need Ljungstrom

The Ljungstrom operates on the continuous regenerative counterflow principle. The heat transfer surfaces in the rotor act as heat accumulators. As the rotor revolves, the heat is transferred from the waste gases to the incoming cold air.



The Air Preheater Corporation 60 East 42nd Street, New York 17, N. Y.

Standard have not yet publicly indicated whether or not they will go to three grades of gasoline.

Several refiners believe that whatever Texaco does will be "the real deciding factor." That's because Texaco is the only oil company marketing in all 48 states under a single brand.

A few companies have the capacity to compete with the highest-octane fuels on the market within their present two-grade system. Others may have to go the multi-grade route and manufacture only a limited volume of the highest octane fuel.

Shell and Sinclair recently announced new "super" octane premium gasolines that are priced 1¢ a gal. above their old premiums which the new premiums replace. Neither company claims its premium is above 100-octane. But both approach the 100-octane range.

One integrated company on the Gulf Coast is preparing to market a 100-octane premium in either a two-grade or a three-grade system next year. If the company decides to go three-grades, it is planning a 92-octane or 93-octane regular, a 98-octane "middle" premium, and 100-octane for its new "super" fuel.

A leading West Coast independent is getting set to introduce a 100-octane fuel to that area sometime in 1957.

Catalytic reforming, alkylation, and isomerization are the key processes to which refiners are turning for their higher octane gasolines. And there is a growing use of newly-developed additives to improve octane ratings.

Sinclair went the additive route to turn out its new higher-octane premium (PW—Aug.24'56,p32). Earlier, Socony announced a new additive to improve the octane rating of both its premium and regular grades.

Catalytic reforming is providing the biggest boost in octane quality, and refiners are continuing to increase cat reforming capacity.

Some refiners are planning to turn to catalytic reforming recycle processes, such as Universal Oil Product's Rexforming and Houdry Process Corp.'s Iso-Plus units, to provide greater volumes of high-octane reformate with mild cat reforming techniques.

Two Rexformers were placed on stream this year, one a 5,500 b/d unit at Aurora Gasoline Co.'s Detroit refinery, and the other a 4,000 b/d unit at Cosden Petroleum Corp.'s Big Spring (Tex.) plant.

The Aurora Rexformer produces a debutanized Reformate of 410F end point. It tests 98 Research octane unleaded. When leaded, the fuel is rated at more than 102-octane (extended scale).

The first Iso-Plus Houdriformer in the U.S. is now under construction at Tidewater Oil Co.'s Delaware City (Del.) refinery. The unit, being built by C. F. Braun, will be the largest catalytic reformer built with a capacity of 45,000 b/d.

Higher severity reforming will boost the reformate volume, but generally it results in shorter catalyst life.

Alkylation of isobutane with light olefins is another octane-improvement conversion process that is growing in importance with refiners.

Refiners also are thinking of getting added high-octane blending components through isomerizing pentane and hexane fractions (PW—Apr. 27'56,p36). A very small amount of isomerization capacity is on stream. But interest in isomerization is growing with the introduction of three new processes this year.

What's New / IN REFINING

A process for making ethylene and propylene directly from petroleum has been developed in Japan.

The process, developed by Dr. Shigeru Tsutsumi, of Osaka University, is a moving-bed, fluid-catalytic process. It is a complete vapor phase under reduced pressure. Feeds include crude oil, distillates, and heavy oils up to 660F end point.

Yields are reported to be roughly 30% ethylene, 15% propylene (including butylene), 30% methane (including ethane), 20% hydrogen, and the remainder pure aromatics—3% to 5% benzene, 1% toluene, and 1% xylene.

•

Standard Oil Co. (Ind.) has awarded a contract to Refinery Engineering Co. to build a new waste water purification plant at its Casper (Wyo.) refinery. The project is expected to be completed early in 1957.

The project includes the construction of a 947-acre impounding reservoir to prevent pollution of the North Platte River.

•

Pacific Petroleums, Ltd., has bought rights and options for up to 50% of the outstanding common stock of X-L Refineries, Ltd.

X-L Refineries, a subsidiary of Excelsior Refineries, operates a 3,000 b/d refinery at Dawson Creek, B.C.

•

Standard Oil Co. of Texas will add a 27,000 b/d fluid catalytic cracker at its El Paso refinery.

Fluor Corp. has been awarded the contract to engineer and construct the unit, a Model IV cracker, licensed by Esso Research. Construction will start in December and the unit is scheduled for completion next September.

Fluor will also install fractionation, gas recovery, caustic treating, and distillation facilities. Over-all cost is estimated at $5-million.

•

C. F. Braun & Co. has commenced construction of a Platformer-Unifiner at Union Oil Co.'s Los Angeles refinery. The combination unit is reported to be similar to the one now operating at Union's Oleum refinery. This latter unit has a 14,500 b/d reforming capacity and a 15,750 b/d hydrogen treating capacity.

•

Fluor Corp. of Canada has been awarded a contract for engineering and construction of a 4,400 b/d Platformer and a 3,600 b/d Udex unit at Canadian Oil Co.'s Sarnia refinery.

Construction of the $3-million project will start this fall. Completion is scheduled for mid-1957.

•

Phillips Petroleum Co. has awarded a contract to Oakland Engineering & Construction Co. to build a laboratory at Phillips' Woods Cross (Utah) refinery. Completion is planned for early 1957.

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Refinery Engineering Co. has purchased Jones & Laughlin Supply Division's Tulsa office and warehouse.

Refinery Engineering, a division of Vitro Corp. of America, will take over the quarters this fall. The acquisition will enable the company to expand its home office personnel from a present 200 to an eventual staff of about 400.

DEPT/International

Egypt Oil Grants Wait

EGYPT—Discussions on pending grants of new oil concessions may be speeded up somewhat by the appointment of Dr. Mahmoud Abu Zeid as president of the new General Petroleum Organization (HAP).

Dr. Abu Zeid, former director-general of the Fuel Department, replaces Col. Mahmoud Youness, President Nasser's petroleum boss and chief technical adviser. Youness is now managing director of the nationalized Suez Canal Authority and is expected to have both hands full on the job.

The conflict over the Suez Canal has further delayed government preoccupation with petroleum affairs, including the granting of new concessions, originally expected in August. HAP decisions on the grants—which include bids from U. S. independents—will have to be approved by Minister of Industry Dr. Aziz Sidky, and then by the Cabinet. (PW—Jul.27 '56,p35).

But meanwhile, signs are growing that oil companies in Egypt may face increasing government regulation aimed at controlling personnel.

For one thing, a new law requires all Egyptian nationals working for foreign commercial, industrial, and non-profit organizations to have the previous permission of the Ministry of the Interior. The law has already affected foreign oil companies.

When the law was originally passed last May, Egyptians already working for the oil companies were required to file applications for permission to work for foreign organizations. The applicants now have their answers—and they include quite a few rejections.

Among those who were refused permission to work for foreign firms is Ibrahim el-Fawwal, public relations director of Anglo-Egyptian Oilfields, Ltd., a long-established Royal Dutch Shell oil producer. The reason for the rejection was that el-Fawwal, who has a British wife, had too many contacts in the British Embassy.

For another thing—independently of this law—Egyptian authorities are putting increasing pressure on the personnel departments of the oil companies. On government "suggestion," the personnel directors of Shell and the National Petroleum Co. were replaced with army men. National Petroleum is a locally registered operating company for the internationally owned International Egyptian Oil Co. (PW—Mar.23'56,p34).

Another straw in the wind points to regulation of the character of oil company operations. Henceforth oil companies in Egypt—like those in Saudi Arabia and Kuwait—will observe Friday, the Moslem Sabbath, as the weekly holiday. Thursdays will be half-day.

This was announced by Anglo-Egyptian Oilfields Ltd., Mobil Oil Inc. (Socony), and Sahara Petroleum Co. (Conoco), after Egyptian authorities urged that they switch their weekly rest day from Sundays to Fridays.

At first the government intended to pass special legislation requiring all schools, factories, and business concerns to observe the Friday closing. But then it was thought less likely to invite publicity and criticism if major industrial concerns were quietly asked to "observe the national and religious customs and traditions of the country" instead of forcing the issue by special legislation.

Petrochemical Plants Face Delay

Construction of Venezuela's national petrochemical industry, already behind schedule, will probably be delayed further by the sudden termination of the government's contract with Blaw-Knox Co. (PW—Aug.17 '56,p29).

The Venezuelan Petrochemical Institute, an official agency working under the Ministry of Mines & Hydrocarbons, stepped in recently and announced it will take direct charge of design and construction of the $150-million project. The total includes coal and mineral projects in which Blaw-Knox was not involved.

Not long before this, the government revealed that the construction schedule has been set back at least a year. The first stage of the project is now slated for completion by the end of 1958.

The move was officially described as a long-planned transition to government operations and management. The new Petrochemical Institute was functioning as general coordinator, and was scheduled to operate the plants eventually. (PW—Aug.3'56,p33).

Dr. Alberto J. Caldera, director of economy of the Ministry of Mines, and also president of the new Institute, said it is now ready to assume the operation and administration of the work Blaw-Knox had been doing. The Institute, he said, will ask for all the technical advice it needs, and will also absorb some of the Blaw-Knox technical personnel.

Blaw-Knox's work, he said, had been particularly valuable in the planning of the job and training of personnel.

Unofficial sources in Venezuela, however, hint that the real reason for the sudden shift at this time was some dissatisfaction with progress at Moron on the Caribbean seacoast, where the new plants are being built.

Blaw-Knox signed a contract in December, 1955, to design and build principal units of the industrial complex on a cost-plus basis. Terms of the agreement were never revealed, but reportedly included an initial payment of $900,000 and a percentage not to exceed 10%. The government retained the right to terminate the contract at any time.

When the agreement was called off, Blaw-Knox had the foundations and some of the structure built for two main units: a chlor-soda plant with annual capacity of 11,200 tons of caustic soda and 10,000 tons of chlorine, and a chemical fertilizer plant with capacity of 150,000 tons a year.

Design and construction of smaller units, such as a 3,000 b/d refinery, were handled directly by the Ministry of Mines & Hydrocarbons, and later by the Petrochemical Institute.

A Blaw-Knox spokesman in Pittsburgh said the contract was "agreeably and mutually terminated" because the government stated its desire to assume operation and management of the projects.

But though efforts were being made to absorb some of the Blaw-Knox personnel in order to reduce the costs of the change, further delays in the petrochemical program are inevitable. Time will be lost as the new Institute adjusts from its role of overseer to that of planner and builder.

The new government agency is currently negotiating purchase of machinery and equipment for the chlor-soda and fertilizer plants and the refinery.

Much of the design will probably be farmed out to U. S. and European firms, while most of the construction can be handled by local contractors.

Egypt Faces Suez Tie-Up

The Egyptian government is making no secret of its anxiety that traffic through the Suez Canal may come to a near-standstill if Western European pilots—mostly British and French—should resign in a block, refusing to work for the new Egyptian canal authority.

Egyptian officials of the nationalized canal company say they are aware that British and French pilots, and most of the Scandinavians, have signed loyalty affidavits to the old canal company that employed them and would quit their jobs if called upon to do so.

The number of the highly trained pilots available to guide vessels through the 103-mi. waterway has been decreasing daily from the 193 employed at the time the Suez Canal Co. was nationalized. Of these, 61 were British, 53 French, 36 Egyptian, 14 Greek, 12 Dutch, 8 Norwegian, 2 Danish, 2 American, 2 Italian, and one each from Poland, Spain, and Yugoslavia.

Even then, the number was far short of the 250 which the Suez Canal Co. felt required to keep steadily increasing traffic running smoothly. It was frustrated in its attempts to raise the number by a running dispute with the Egyptian government, which wanted more Egyptian nationals and refused visas for Western Europeans hired by the company.

Now the shortage has become acute since some 15 of the pilots failed to report back to work after annual vacations in Europe. Egypt has already been forced to reduce the two daily northbound convoys transiting the canal into one large convoy.

Although even skilled pilots must be specially trained before they are qualified to handle the tricky Suez Canal transit, Egypt is now desperately shopping around in a number of countries for any pilots willing to work for the Egyptian canal authority.

The new authority is now considering applications from 15 Italian and Greek pilots. And as an emergency move to meet the critical situation, it has hired 27 Egyptians and 3 Greeks and is cramming them through a course on piloting.

German pilots of the Kiel Canal are reported being wooed by offers of lucrative salaries.

Egyptian consular agents approached the pilots, who operate on the northern European canal between the Baltic and the North Sea. They asked only for good references and 10 years' experience in canal piloting.

The offer reportedly has stirred considerable interest among the 225 pilots operating on the Kiel Canal. A representative of the corporation of pilots at the North Sea end of the canal is reported to have gone to Bonn to negotiate a deal with the Egyptian Embassy there.

It has been learned unofficially also that the Soviet Union has offered to provide Egypt with pilots.

The Soviet offer was made in London by Russian Foreign Minister Dmitri Shepilov to Aly Sabry, Nasser's chief political adviser, who attended the London conference on the Suez Canal as an observer.

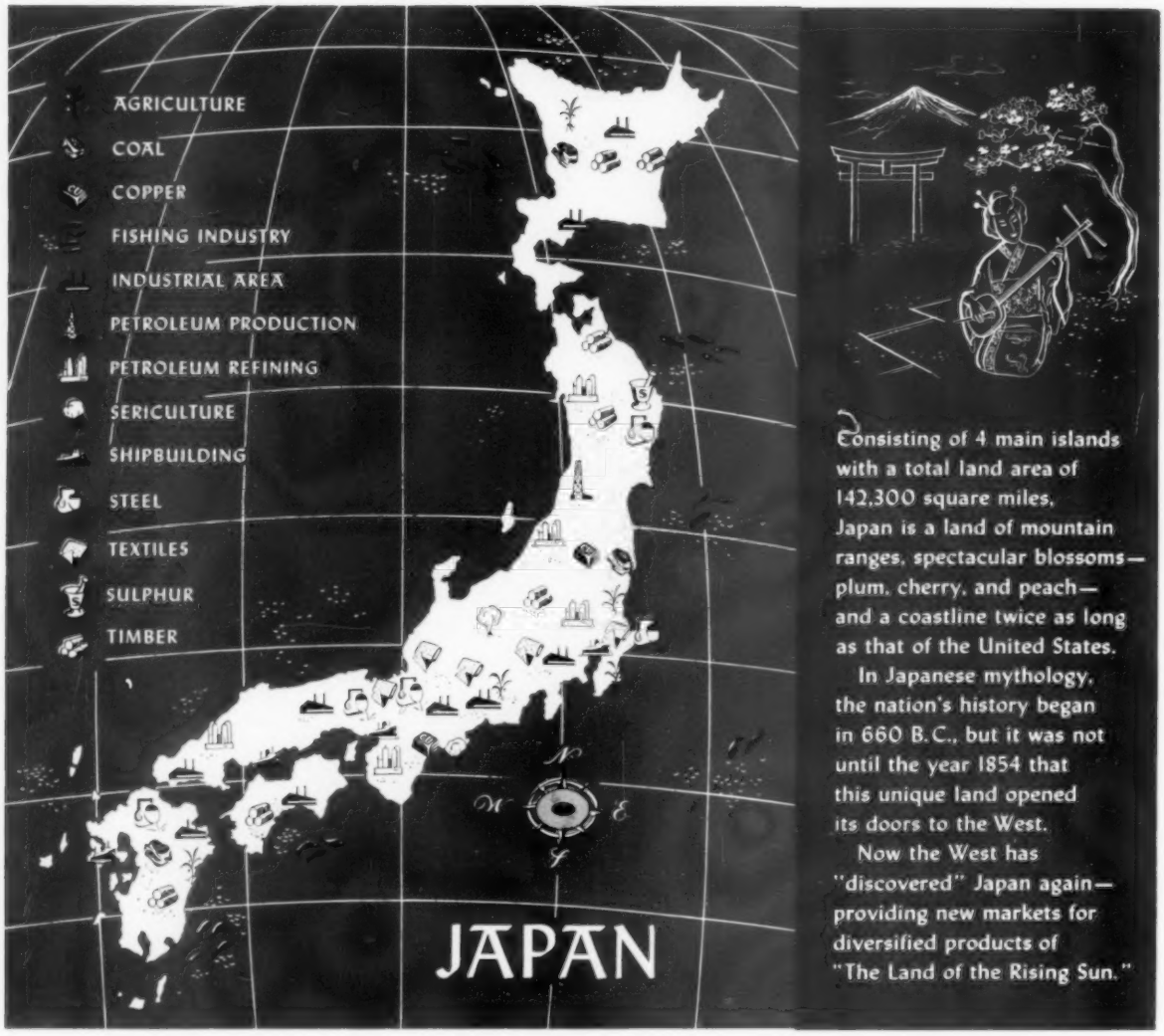
The Egyptian reaction to the Soviet offer has not been disclosed. But last week's announcement in Washington that the Egyptian Embassy would recruit pilots in the U. S. appears to indicate rejection, possibly as a conciliatory gesture to the West.

At the same time, Egypt's Ambassador to the Soviet Union said in Moscow that "a number" of Russian pilots had volunteered for Suez Canal service, though none had been hired.

In the meantime, Col. Mahmoud Youness, chief of Egypt's new canal authority, says he aims to increase the number of pilots to 300, in addition to replacing any who resign. At present, however, it appears Egypt will have difficulty in maintaining even the present number of qualified personnel.

Tractors Speed Soviet Drilling Programs

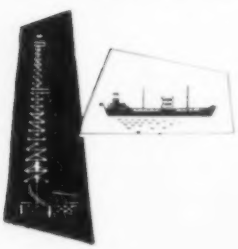
Russian drilling equipment is moved from one drill site to another in the Tatar oil fields by special tractor-drawn carriages that transport the drilling and pumping blocks separately. This speeds up erection of the derricks, which feature large-panel construction, and keeps drill teams working uninterruptedly.


AGRICULTURE
COAL
COPPER
FISHING INDUSTRY
INDUSTRIAL AREA
PETROLEUM PRODUCTION
PETROLEUM REFINING
SERICULTURE
SHIPBUILDING
STEEL
TEXTILES
SULPHUR
TIMBER
JAPAN
Consisting of 4 main islands with a total land area of 142,300 square miles, Japan is a land of mountain ranges, spectacular blossoms—plum, cherry, and peach—and a coastline twice as long as that of the United States.
In Japanese mythology, the nation's history began in 660 B.C., but it was not until the year 1854 that this unique land opened its doors to the West.
Now the West has "discovered" Japan again—providing new markets for diversified products of "The Land of the Rising Sun."

LAND OF THE RISING SUN . . . Despite her enormous losses of manpower and productive capacity in the last war, Japan, restored to full sovereignty in April, 1952, has made a remarkable economic recovery in the short space of 10 years. Today Japan is striving successfully to meet high-level foreign demands for raw materials, textiles, machinery, precision optical goods, chemicals, and specialty food products.

Japan is America's number one customer for many raw materials and basic foodstuffs, while America in turn has become a leading market for Japanese goods. This exotic land of more than 89 million population is today the only Asian country producing and supplying machinery to countries in the East . . . petroleum demand has increased over 60 per cent since prewar days, mainly due to the enlarged scope of Japan's industrial and business activities.

Standard-Vacuum is proud of the part it has played in the economic recovery of this ancient and picturesque country through technological assistance contracts, enabling affiliated Japanese refineries and manufacturers to keep pace with the latest petroleum refining techniques and to utilize a number of processes developed abroad during the past decade.



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SOUTH PACIFIC ISLANDS • SOUTH WEST AFRICA • TANGANYIKA • THAILAND • UNION OF SOUTH AFRICA • VIETNAM

What's New / AROUND THE WORLD

Iran Strike Looks Big

IRAN—Early reports from Teheran indicate the National Iranian Oil Co. has made a substantial strike at its new wildcat at Qum (PW—Aug. 31 '56,p35). Some oil sources this week reported the well may be an 80,000 b/d producer.

Meanwhile, Myron Kinley, world-famous tamer of wild wells, has now arrived at Qum in an effort to bring the well under control. It is blowing 100,000 b/d of oil into the air, flooding the surrounding territory of Qum, a religious center about 75 mi. south of Teheran.

It was being drilled for the Iranian government oil company by Drilling & Exploration Co., of Los Angeles, its drilling contractor.

The oil is 41 gravity, identical with that of the discovery well completed in 1952. The initial find is also known to be unusually low in sulfur content.

The new well is the fifth drilled for NIOC since 1951 by Drilling & Exploration Co. in government reserves outside the operating sphere of the international consortium.

•

New Oil Show

COSTA RICA—Union Oil's second test near the Panama border has hit "favorable" oil shows at 4,900 ft., a company official announced in San Jose last week (PW—Aug. 3'56,p37).

The Cocolas No. 2 well was immediately shut in after a half-hour flow. The well made oil the last 15 minutes. Casing is now being run.

The new well, Union's fifth in Costa Rica, is an offset to Cocolas No. 1, which had oil shows at depths of about 5,400 ft. and 6,400 ft. at a site 9 mi. from the Panama border. Although it initially gave promise of becoming Central America's first commercial producer, it was finally abandoned as non-commercial.

Union Oil also plans to drill at least one test over the border in Panama, where it also holds concessions.

•

New Oil Grant Due

JORDAN—The government has agreed to grant an oil concession covering one-third of Jordan to Jorge Zimeri, an Arab emigre from Jerusalem who is said to own an oil company in Guatemala (PW—Aug.3'56, p37). The agreement will take effect after it is approved by the new Parliament to be elected in October.

Terms of the new concession are similar to those of U. S. independent Edwin W. Pauley, who was originally granted the right to explore the entire country before he makes his one-third selection next month (PW—Jun. 8'56,p33).

Zimeri will have 6 years in which to find oil, with two possible 2-year extensions. If oil is found, the agreement will extend 55 years, after which all properties revert to the government. Profits will be split 50-50 after production is established, with a monthly 16⅔% royalty to be applied against the government's share.

•

Oil Firms File in Italy

ITALY — Major international oil companies, including Gulf, BP, and Jersey Standard, are tentatively filing applications for oil grants. But they may not accept awards if Italy's Senate ratifies the new oil bill in the form passed by the Chamber of Deputies.

Italy's mining council is already studying applications, subject to any later amendments the Senate might make (PW—Aug.31'56,p35).

The government is understood to be ready to grant permits to Gulf, which found the first commercial production on mainland Italy. But last week in Rome, Gulf said it would not accept the awards pending Senate examination of the oil bill, and threatened to cease activities on the mainland if the bill were passed in its present form.

Prince Nicolo Pignatelli Aragona, head of Gulf's Italian subsidiary, issued a statement reiterating the company's stand that the new law is objectionable because it ignores the usual 50-50 principle and imposes an unusual number of restrictions on operations of foreign companies.

Oil circles generally seem to feel, however, that the oil bill might still turn out to be something "you can live with even if you don't like it"—particularly since the government has given assurances that further depletion provisions will be allowed.

Payments to the government, though not established on the 50-50 principle, are unlikely to amount to more than 50% of profits, oil men feel. Royalties are figured on a sliding scale based on per-well production, and it's generally felt that wells in Italy are unlikely to be big enough to carry payments over the usual 50-50 profit split.

•

VENEZUELA—The new Mara concession reportedly won by Star Oil Co. may be put on the bidding block again.

According to reports in Caracas last week, the new U. S. company could not raise the $38.2-million it was said to have bid for the 8,500-hectare block bordering the Mara field in northwest Venezuela (PW—Aug.24'56,p24). The company, according to still-unconfirmed reports, was organized by Hollywood's Eric Johnston.

The status of block 9, a 10,000-hectare tract in Lake Maracaibo which Star Oil also won, is yet unclear. It is believed the company is prepared to pay for it, however.

•

NEW ZEALAND—British Petroleum is expanding its oil exploration to the east coast area of North Island.

BP announced in Wellington last week that it will form a joint company with Todd Brothers (an Australian firm) to explore some 12,000 sq. mi., including offshore areas, on which both companies hold licenses.

Late last year, BP joined with Todd Brothers and Shell to explore 10,000 sq. mi. in the Taranaki and Rangitikei areas of North Island (PW—Dec. 23'55,p28).

•

CUBA—White Eagle International Oil Co., of Tulsa, has concluded a farm-out agreement with Cuban Stanolind Oil Co. covering some 1.1-million acres in Camaguey and Oriente provinces.

Under the agreement announced last week, Cuban Stanolind, which holds extensive Cuban acreage in its own right, will drill at least two wells to earn a half-interest in a horizontal section of the structure on which each well is drilled, following a year of preliminary exploration. The acreage is held by White Eagle subsidiaries.

The Tulsa independent acquired some 4.3-million acres throughout the island republic earlier this year as its first move into foreign exploration. At the same time, it also acquired some 700,000 acres in four areas of the Philippines.

Sohio President Foster's five ways to

Fix manpower needs

Learn men's abilities

How to Plan the Future

"The most valuable contribution I think I can make as president is to develop men so that Sohio will have an assured supply of able executives." That's the view of Clyde T. Foster, president of Standard Oil Co. (Ohio). It explains why he keeps a "family album" on the company's 100 top managers.

This week, and every week in the year, Foster is setting aside time to size up the work of key men and to plan their future development. He feels strongly that the head of every oil company who wants to keep his organization strong should do the same thing. He believes that management development is just as important for a small outfit as for a major like Sohio. And he thinks that a program such as his would actually be easier for the independent operator.

When Foster mentions his "family album," he's not referring to a pasteup of executives from 1880 of this, the oldest of the Standard Oil companies. He is talking about a ring binder book in his desk that has key information on 1% of Sohio's 10,000-plus employees. Listed are men who have reached salaries of $12,000 or more in production, transportation, manufacturing, marketing and staff work. Under each name are highlights of the man's job and salary advancement, and his potential in the company.

Notations are made in the book by Foster with the aid of psychologist Dr. O. A. Ohmann, Sohio's personnel director. Aware of it or not, the 100 men listed are being groomed to do their present jobs better, or possibly for top responsibilities.

Although other oil companies have formal management development programs, Foster's psychology-family album approach is unique.

Foster's close attention to his managers' work isn't just a hobby. He feels it is the only way the company can reach three main efficiency and expansion goals. The first is that Sohio maintain its present leadership in Ohio. The company sells 35% of all gasoline marketed in the state—as much as its four nearest competitors combined.

The second goal is improved output from present facilities, and a more even balance between crude supply and refinery needs.

The third is to make Sohio quality products and Sohio-type service available in areas where it can be done economically. (The company has appealed the July court decision that banned the Sohio trademark in Indiana Standard's marketing territory.)

The planning needed to reach these objectives brought home to Foster the necessity for long-range development of his people.

Sohio's management development program starts with a forecast of the number of executives needed 5, 10, and 15 years ahead. This is broken down by organizational levels, "job families," departments, and units. Against these needs is balanced the inventory of management men, drawn up through appraisal of their work.

build a team . . .

Polish rough spots

Keep plan flexible

Create right 'climate'

# of Oil Management

And this is where Foster moves in hard.

The work of each of the 100 managers in the "album" is reviewed annually by Foster, Personnel Director Dr. O. A. Ohmann, and the manager's superior. Meetings of the three are held throughout the year—whenever their schedules give enough time.

Discussion of a manager's strong points is brief. These are usually well known, since they led to the manager's promotion to the $12,000-or-above class.

What Foster and the others are looking for are the soft spots that keep the man from doing the "best" work at present—and that could easily halt his advancement in the company. Discussions about each manager last for one or two hours.

During the talks, Foster gives special attention to (1) the man's suitability for his present job, (2) his potential for greater responsibility, (3) the direction his development should take, and (4) who, in this development, is going to do what, and when.

Ohmann plays a key role in bringing a psychologist's thinking to all phases of management development. In practice, he spends almost all of his time planning the development of the 100 managers. He answers only to Foster. But his work keeps him in close contact with all levels of managers.

Ohmann, a former psychology professor at Western Reserve University in Cleveland, helped Sohio with its personnel problems in World War II. The effective work Ohmann did for the sales department caught Foster's eye and led to the personnel directorship.

Ohmann's work, however, does not relieve line managers of responsibility for spotting and developing management potential in their departments. They answer directly to Foster for that.

This does not mean that Foster relies entirely on information relayed to him by department heads. He knows each of the 100 managers, and arranges at least one close-up look at each man a year. He sees men in the Cleveland (home office) operations several times a month. And he gets additional data on the managers through casual conversations and the flow of reports across his desk.

More important, Foster spends much time away from headquarters. Before his field trips—whether to drilling rigs, refineries, or terminals—he has prepared for him a rundown on those of the 100 men he will see.

This briefs him on each manager's nickname, what the development sessions have shown about the man, what progress he has made—even the name of the manager's wife and the number of his children. Foster thus is able to meet his men on a friendly, personal basis, either during business meetings or at the dinner table.

Foster insists that the emphasis in improving managers' abilities is on self-development, rather than on training by others. And this development is work-centered, rather than course-centered. Furthermore, Foster believes that responsibility for management development belongs in the hands of line men, and cannot be delegated to staff departments.

Therefore, Sohio's approach calls for a man's immediate superior to diagnose specific needs and to provide counseling. And at the yearly appraisal sessions, the superior, Foster and Ohmann may agree that job rotation will lead to the greatest improvement. Or they may agree on other moves in common use in the industry, such as formal technical instruction, assignment to a task force, a broader program of reading, or more activity in community work.

Although the final decision on any change in a manager's status is Foster's, he very rarely exercises it. Recommendations of division heads are almost always followed.

Throughout Sohio's program, stress is on development, rather than on job promotion. The principle: The best way to prepare a man for promotion is to help him do his present job better.

Foster and Ohmann never try to push a manager who doesn't want to be pushed. And they don't give him a black mark. Occasionally one of the group of 100 will say, in effect, "I'm not a bit interested in getting into a ratrace for a higher job. I don't care for community work, and I wouldn't start nursing Boy Scouts or take a six-week Harvard course for all

the vice-presidencies the company has. I show my ability to do my present job well, and I'm happy and content."

When this happens, Foster, Ohmann, and the superior back off quickly. The man continues to receive any needed coaching, and his job is in no way endangered.

Foster isn't pretending that his approach carries all the answers. He thinks any program has to be flexible. His view: There is no single, sure-fire plan for executive development. Methods must be open to change, so that unsuccessful ones may be discarded, and new ones tried. Above all, the same pattern of behavior should not be forced on all managers. Nor should too much emphasis be placed on the mechanics of management development. The reason is that executives may get a comfortable feeling they have met their coaching obligations if they merely go through the specified motions.

As benefits of the management development program, Foster lists an excellent attitude of the 100 managers toward the company, and a very high retention of key people. Foster frankly admits that as president he is somewhat isolated from most employees. And he concedes that because his intense interest in the work is well known, he would not be likely to hear many objections.

Nevertheless, he has never found resentment against the program on the part of managers, but has had many reports that it is highly rated in the company.

Actually, Foster's concept of managing goes well beyond the manpower development work to include what he terms "management climate." This covers the whole culture of the organization in its social and physical environment. It covers values, policies, philosophies, ways of behaving, and all the intangibles that influence decision-making.

Foster believes that a favorable "climate" for daily work will bring a better payout in the number and kind of executives who are developed than will "a program of management development." He is convinced that an attitude of learning must permeate the company.

And Foster can't stray far from the feeling that it's the individual manager who counts most. As he puts it, "When occasionally we have to go outside for a man, I have a sense of defeat. I know there is a man in our company who could have done the job, if I had been able to uncover him."

What's New
IN MANAGEMENT

The number of employees in U.S. oil refineries rose 5% from 1947 to 1954, and total payroll jumped 52%, according to a new Census Bureau report. The figures: Employees numbered 145,800 in 1947, and 153,200 in 1954. Payroll was $535,800,000 in 1947, and $816,800,000 in 1954. These gains came despite a drop in the number of refineries from 437 to 409.

A breakdown for lube plants in the same period shows a 35% gain in employees, and a 105% rise in payroll. However, the number of lube plants increased from 226 to 283.

•

Oil men will be making a mistake if they refrain from contacting legislators for fear of "lobbying," believes **J. W. Gee,** head of Ohio Oil's legal department at Casper, Wyo.

"Every oil man," he says, "has not only the right, but a positive obligation to see to it that the legislators from his area or state are as well informed as humanly possible on any measure affecting our business."

•

California Standard is winning government good will with its liberal policy toward the military reserve training of its employees. The company has received a citation from Defense Secretary Charles Wilson for its cooperation.

Standard, with more than 10% of its people in the reserves, has adjusted company schedules to allow employees to attend weekly drills. It has avoided discrimination against reservists in hiring, employment practices, or promotions. It has granted time off (in addition to vacation) for required tours of training duty. And it has provided many benefits for employees called to active military service.

•

An appeal to tenth-grade students to consider careers in oil will be made this fall by Canadian Petroleum Assn. The association believes students at this age face a big decision—whether to plan for college, take a specialized high school course, or leave school.

So the association will distribute to schools in Western Canada a pamphlet telling tenth-graders about the opportunities in oil and the educational requirements.

Experience can keep you out of trouble in fighting corrosion, too.

Why gamble with "unknown quantities" when it comes to protecting pipe, pipe joints, couplings and other vulnerable surfaces above and below ground?

Since 1941, TAPECOAT, the quality coal tar coating in handy tape form, has demonstrated its ability to withstand corrosion year after year. In case after case, TAPECOATed lines have been dug up after 10 years of service *with no signs of deterioration on the pipe surfaces uncovered.* That's why TAPECOAT is specified by those who know that continuing protection is the first consideration.

Everything considered, you'll be money ahead by using TAPECOAT to give you the quality protection you need for reduced maintenance and replacement cost.

Write for brochure and prices.

The TAPECOAT® *Company*

Originators of Coal Tar Coating in Tape Form

1565 Lyons Street
Evanston, Illinois

Jobbers Get High Level Listener

The latest step in improving supplier-jobber relations—creation of a special high-level post to supervise these relations—has just been taken by Esso Standard Oil Co.

The new appointment represents a basic change in Esso's handling of jobber (or reseller) relations. Until now, the company dealt with jobber relations on a local level—with divisional reseller managers processing all jobber problems and ideas.

But Esso felt that this localized attention often slowed up the flow of jobber problems and ideas to the company's higher management levels—where they could be acted upon. So the company has made a change:

Esso has named A. R. Taylor to head its new reseller division. Based at the company's marketing headquarters in New York, he will have direct responsibility over all of its jobber relations.

Taylor will work directly with the managers of Esso's ten marketing divisions and with the company's northern and southern regional managers in coordinating its entire reseller business.

He will be in charge of Esso relations with all distributors who own or lease bulk plants and resell Esso gasoline, fuel oil, and other petroleum products to service stations, commercial accounts, or the farm trade. Jobbers who buy gasoline from Esso and resell it under their own private brands also come under the jurisdiction of the new reseller manager.

The new position was set up primarily to insure a better line of communication between Esso and its jobbers.

Most suppliers feel that the jobber is an indispensable part of the marketing pattern—and an important figure in the industry picture. They say that making distribution more economical, the jobber, along with the independent service station dealer, is in the best position to represent the industry to the public.

Esso figures that improved communication with the jobber has been neglected too long. J. A. Miller, the company's vice-president of marketing, says, "This part of the petroleum industry is so important it must be given more emphasis than it has received in the past."

But the post is also aimed at increasing Esso's reseller business.

Esso figures that improved communications with jobbers will solve more problems—quicker. And positively speaking, the company figures that its suggestions can help jobbers become more efficient businessmen, with higher gallonage and more profits.

Naturally, the more Esso's jobbers sell, the more Esso sells.

RESELLER DIVISION HEAD A. R. Taylor will coordinate all of Esso Standard Oil Co.'s jobber relations.

Most of Esso's jobbers feel that the new move is a good one. They say that it's the kind of supplier attention which could go a long way in solving their problems.

Many jobbers have felt that an improved system of communications with their suppliers would cut down the number of disagreements which crop up between "the big man" and "the little man" in the industry.

And they say that a more direct line to oil company high-level management—the kind Esso is now trying to provide—would enable the marketing arm of the industry to solve many of the problems that do arise by itself—without government intervention.

Esso jobbers, asked for their reaction to the new setup, are generally in favor of it. They feel that they'll now get quicker action on their problems than they did under the old system.

If other majors intend to set up similar high level posts to handle jobber relations, they're not talking about it. Most suppliers seem satisfied with their present system of handling relations with jobbers and dealers.

But with the growing awareness of the importance of oil's "little man," it is possible that other companies will give renewed attention to their jobber-(and dealer) relations programs—soon.

What's New IN MARKETING

Detroit Case Appeal

The Federal Trade Commission and the Justice Dept. are still playing "Alphonse and Gaston" over who will handle the legal work in appealing the latest "Detroit Case" decision (PW—May11'56,p10).

Leaders of the drive to limit wholesale price allowances on gasoline have been hoping for a reopening of the case which upheld all allowances "given in good faith."

FTC and DJ held off on the appeal for some time, waiting to see if S-11, the bill which would have limited use of allowances, would be passed. When S-11 died, appeal of the Detroit Case became the only immediate means of limiting allowances.

Now FTC has asked the DJ solicitor to appeal the case. Reports are, however, that the solicitor will approve the appeal—but ask that FTC lawyers handle the court proceedings.

•

Deep Rock Oil Co. will sell its branded products in the Dallas area for the first time this fall. The products will be sold through several marketing outlets owned by Charles Know Jr.

•

American Oil Co., which is turning to fair trade in New England, has pegged its premium gasoline at a price higher than all fair trading competitors in the area.

Amoco began fair trading its gasoline this week in Connecticut and Massachusetts, joining Socony, Esso, Cities Service, Tidewater, and Richfield there; and in Rhode Island, where it joins these five plus Calso and Atlantic.

Amoco has gone along with other suppliers on its regular gasoline price—20.9¢ a gal. But it has pegged its unleaded premium at 2¢-a-gal. more than competitors' 23.9¢-a-gal. price.

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of August 31

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, Cargoes
- Gasoline, 98 oct prem. . . . 13.25-13.75
- Gasoline, 92 oct reg. . . . 11.5-12
- Kerosine . . . 9.125-9.75
- Heating oil, No. 2. . . . 8.5-9.5
- Gas oil, 48-52 d.i. . . . 8.625-9.375
- Fuel oil, bunker "C" . . . $2.10-2.15

Caribbean, cargoes
- Avgas, Grade 100/130 . . . 16.75
- Gasoline, 93 oct research prem. . . . 11.75
- Gasoline, 87 oct research reg. . . . 10.5
- Gasoline, 79 oct research . . . 9.75
- Gasoline, 70-72 oct motor method . . . 9.5
- Kerosine . . . 9.125
- Heating oil, No. 2 . . . 8.5
- Gas oil, 48-52 d.i. . . . 8.625
- Fuel oil, bunker "C" . . . $2.10

New York Harbor, barges
- Kerosine . . . 10.85
- Heating oil, No. 2 . . . 10.35
- Fuel oil, No. 6 . . . $2.80

Okla.-Group 3, northern, shpt, bulk
- Gasoline, 88 oct reg. . . . 11.75-12
- Kerosine . . . 10-10.25
- Heating oil, No. 2 . . . 8.875-9.5
- Fuel oil, No. 6 . . . $2.00-2.20

Chicago, bulk
- Gasoline, 91 oct reg. . . . 13.25
- Heating oil, No. 2 . . . 9.75-11.1
- Fuel oil, No. 6 high sulfur . . . 7.7-8.05

Los Angeles, rack
- **Gasoline, 84 oct reg . . . 12.1↓-12.9**
- Diesel fuel, PS 200 . . . 9-9.8
- Light fuel, PS 300 . . . $2.65
- Heavy fuel, PS 400 . . . $2.15-2.25

Natural Gasoline, Grade 26-70
- FOB Group 3 . . . 4.5
- FOB Breckenridge, Tex. . . . 4

LP-Gas—Propane
- Oklahoma (Group 3) . . . 4.5

Penna Lubes
- Bright stock 25 p.t. . . . 27
- 200 vis. neutral, 25 p.t. . . . 25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v.i. . . . 24-25
- Neutral, solvent 200-210 vis. . . . 19.75-20.75

Gulf Coast Lubes
- Bright stock solvent, 95 v.i. . . . 25
- Neutral, solvent, 200 vis. . . . 21.5

Eastern Hemisphere

Singapore, cargoes
- Avgas, Grade 100/300 . . . 18.375
- Gasoline, 79 oct research . . . 10.625
- Gasoline, 70-72 oct motor method . . . 10.375
- Kerosine . . . 10.125
- Gas oil, 48 d.i. minimum . . . 9.75
- Fuel oil, light . . . $3.40

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 . . . $2.82
- North Dakota, 36.0-36.9 . . . 2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 . . . 3.05
  - Gulf Coast, upper and lower, 26.0-26.9 . . . 2.82
  - West Texas sweet, 36.0-36.9 . . . 2.82
  - West Texas-New Mexico intermediate, 36.0-36.9 . . . 2.75
  - West Texas-New Mexico sour, 32.0-32.9 . . . 2.61
  - East Texas flat price . . . 2.90
  - Mirando, 28.0-28.9 . . . 3.11
- Illinois Basin flat price . . . 2.90
- Pennsylvania Grade, Bradford dist, flat price . . . 4.68
- California, Signal Hill, 21.0-21.9 . . . 2.41†
- North Louisiana-Arkansas, 36.0-36.9 . . . 2.82
- Wyoming sweet, 36.0-36.9 . . . 2.75
- Wyoming sour, 32.0-32.9 . . . 2.48

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C. . . . 2.54
- Leduc-Woodbend (Alta.) D-2, D-3 . . . 2.60
- Redwater (Alta.) D-3 . . . 2.49
- Daily-Mississippian (Man.) . . . 2.34
- Smiley-Viking (Sask.) . . . 2.26

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido . . . 3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz . . . 3.04
- Oficina, 35.0-35.9, Puerto la Cruz . . . 2.80
- Tia Juana Medium, 26.5-26.9, Amuay . . . 2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras . . . 1.90**
- Tarra, 38.0-38.9, Cardon . . . 2.91
- Lagunillas Heavy, Amuay, Cardon, Las Piedras, flat price . . . 2.05

Differential per ½ deg. grav.: (*) 2.5¢ bbl. (**) 3.5¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 36.0-36.9, Ras Tanura . . . 1.97
- Basrah, 32.0-32.9, Fao . . . 1.79
- Iranian, 34.0-34.9, Bandar Mashur . . . 1.91
- Iranian, 34.0-34.9, Abadan . . . 1.86
- Iraq, 36.0-36.9, Fao . . . 1.87
- Kuwait, 31.0-31.9, Mina-al-Ahmadi . . . 1.72
- Qatar, 39.0-39.9, Umm Said . . . 2.06

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon . . . 2.46
- Iraq, 36.0-36.9, Tripoli, Banias . . . 2.46

Far East, (Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38 . . . 2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U. S. Gulf-New York, clean . . . (USMC +70%) $4.85[1]
- U. S. Gulf-New York, dirty . . . (USMC +60%) $4.56[2]
- **NWI-USNH, dirty . . . (USMC +55%) $4.19↓[3]**
- NWI-UK/Cont., dirty . . . (Scale +130%) 74/9*
- Persian Gulf-UK/Cont., dirty . . . (Scale +95%) 99/6*
- Pers. Gulf-USNH, dirty . . . (USMC +45%) $18.42

**Sterling Owners asked: (1) $5.13/5.70 (USMC +80/100%); (2) $4.70/4.85 (USMC +65/70%); (3) $4.32 (USMC +60%).*

The Market Trend

Dog Days: Everybody Wants a Change

This summer has been a tradition breaker, domestic and foreign, in more ways than one. Summer No. 2 discounts—a tradition in the East—have failed to appear this season. In the Rockies and the Southwest, sliding-scale jobber gasoline margins last month were a distinct innovation.

The recent moves in Texas crude prices are a break with tradition, too. For over a decade—a long time in the oil business—Texas, Mid-Continent, and Rocky Mountain sweet crudes were priced (sometimes unrealistically) on a par. But in recent weeks, sweet oils in North Texas, West Central Texas, and the Panhandle began to seek their own levels.

What was taboo yesterday is not necessarily so today. Witness this season's import of gasoline from the Caribbean (PW—Jun.8'56,p45), a departure from custom of long standing.

Sometimes the break is sharp and clear, and sometimes it's gradual and hard to notice. Canadian No. 2 buyers shied away this season from their suppliers of record in the Caribbean. In Venezuela, sellers have changed their stance, and now seem more interested in moving oil in the form of products rather than crude. At the Gulf, this summer's special-additive gasolines are causing marketers to retire in droves as spot cargo buyers of premium-grade motor fuel. Come to think of it, where's all the 1¢ propane in Oklahoma this month that used to be dumped or flared in yesteryears?

A real battle with tradition is shaping up across the Atlantic. Italy, with plenty of excess refining capacity, is a cinch to become the first European export center in world trade. Right now, fuel-oil-minded Italian refiners cue their export prices to gasoline-economy pricing at the U. S. Gulf. But the trouble with transplanting U. S. prices to Italy is this: Gasoline prices there are too high to attract serious buyers; diesel and fuel oil prices are too low to bring out offerings.

Of course, it's still almost like dogma for world bunkering prices to swing on quotations at the U. S. Gulf (PW—Aug.17'56,p33). But strains are showing up even here. Last month's diesel cuts in Europe, for example, were made in several countries where the product actually is in tight supply.

Gasoline—Chock-full?

A wavering gasoline market at the Gulf was shaken up last week by offerings to East Coast buyers from the Caribbean. The seller was willing to absorb the stiff (1.25¢) duty, also discount prices at the Gulf.

A big question is: Who will buy gasoline from Gulf Coast independent refiners this winter? Quite a few independents have no controlled retail outlets and depend on the majors for spot sales.

Ergo: If the majors go into the winter loaded, as it looks they will, they won't be buyers of independent product. This could be rough all around.

No. 2

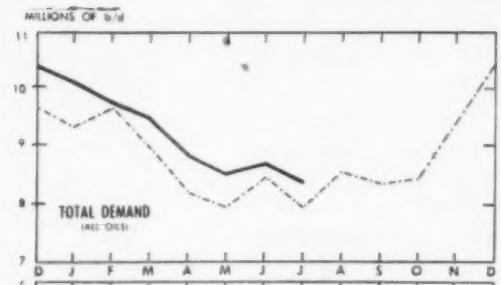
September sales will probably be slow. Buying off-season No. 2 is like borrowing money—nobody can force you to do it. The real buying by resellers won't start until about Nov. 15.

Tankers:

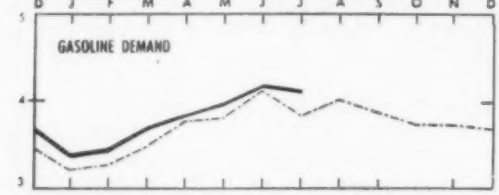
French charterers are bidding USMC +95% for Persian Gulf loaders. This bullish trend in rates will probably spread to the Gulf/Caribbean.

PETROLEUM WEEK'S

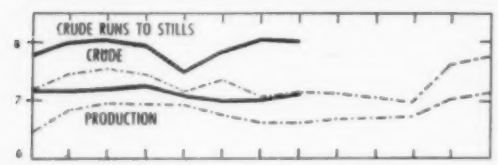
Fingertip Figures



TOTAL DEMAND
Latest 4-week average *
Year ago 8.396

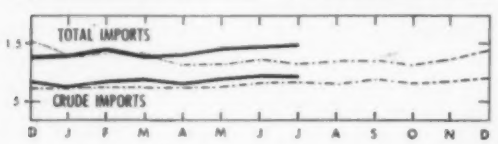


GASOLINE DEMAND
Latest 4-week average *
Year ago 4.007



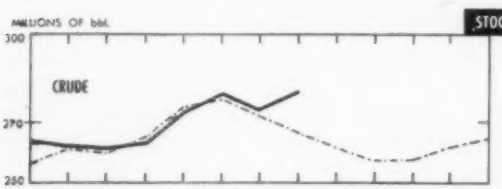
RUNS TO STILLS
Latest week *
Previous week 7.943
Year ago 7.642

CRUDE PRODUCTION
Latest week 7.111†
Previous week 7.127
Year ago 6.662
†—*Petroleum Week estimate*

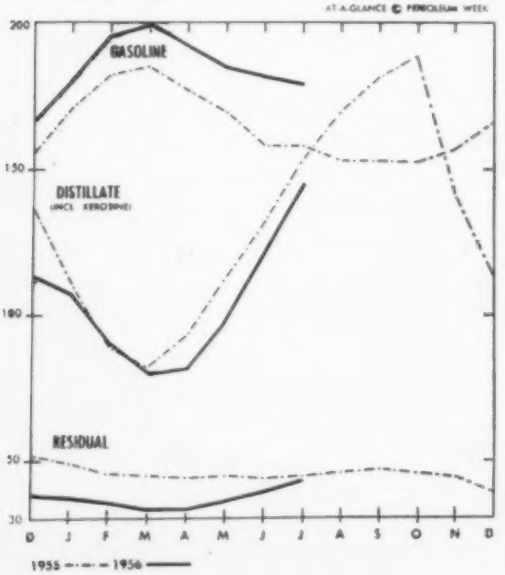


TOTAL IMPORTS
Latest week *
Previous week 1.488
Year ago 1.309

CRUDE IMPORTS
Latest week *
Previous week 1.082
Year ago .917



CRUDE STOCKS
Week-ended 8-25 276.9
Previous week 277.1
Year ago 259.8



GASOLINE
Latest week *
Previous week 175.8
Year ago 153.3

DISTILLATES
Latest week *
Previous week 165.9
Year ago 168.3

RESIDUAL
Latest week *
Previous week 46.1
Year ago 46.6

Total inventories of crude oil and refined products will accumulate at the rate of 93,000 b/d this year, pushing total stocks at year end to nearly 750-million bbl., according to the U. S. Bureau of Mines.

This estimate was made this week in the bureau's revised supply and demand forecast. If the forecast proves close to reality, this will represent the largest annual addition to inventories since 1953's build-up of 114,000 b/d.

The estimate of year-end inventories is around 10-million bbl. higher than most oil company economists figured at mid-year. It contrasts with a small decline in total stocks during 1955, and with an increase of 27,000 b/d in over-all inventories during 1954.

The new estimate of the 1956 stock build-up is based on the Bureau of Mines' new prediction that total demand this year will average 9,263,000 b/d, and total new supply will come to 9,356,000 b/d.

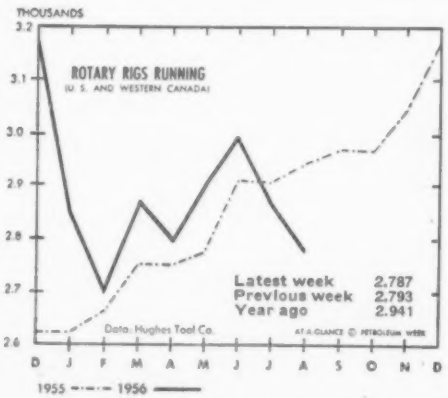
The bureau's forecast of demand (a gain of 5.5% over 1955) falls just about in the middle of the range of estimates made for PETROLEUM WEEK by six leading oil economists at mid-year (PW—Jun.29'56,p10).

The bureau predicts that domestic production of crude and gas liquids in 1956 will average 7,902,000 b/d. This means that domestic producers will account for 85.3% of the total demand expected (disregarding addition to stocks), compared with 85.9% in 1955.

Crude oil imports this year (figured at 953,000 b/d) will account for 10.3% of the total demand, compared with 8.9% in 1955.

* * *

*Due to the Labor Day holiday, most figures for the week ended Aug. 31 were unavailable at press time.


THOUSANDS
ROTARY RIGS RUNNING
(U. S. AND WESTERN CANADA)
Latest week 2.787
Previous week 2.793
Year ago 2.941
Data: Hughes Tool Co.
AT-A-GLANCE © PETROLEUM WEEK
D J F M A M J J A S O N D
1955 1956

ERIC G. LINDROTH has been elected a director and senior vice-president of Esso Export Corp., international marketing and supply affiliate of Standard Oil Co. (N.J.) Lindroth has also been named to Esso Export's executive committee. He joined the Jersey Standard organization in 1932 as an office boy. In 1944 he became assistant treasurer of Esso Export, and was named treasurer and a director of the company in 1948. In 1954, he became chairman of the board of Esso Export Limited and Standard Oil International, Ltd., at London.

DR. GEORGE S. HUME has been named a vice-president of Westcoast Transmission Co., Ltd., at Vancouver, B. C. Dr. Hume was formerly director-general of scientific services for the Canadian Government's Department of Mines at Ottawa. He is president of the Geological Society of America.

A. M. ALLOWAY will manage the Rocky Mountain district land office for Anschutz Drilling Co., Denver. He recently resigned as a member of Gulf Oil Corp.'s Denver land department.

JOHN P. JENNINGS has been named general sales manager of Chicago Steel Tank Co. Jennings was formerly a sales engineer for Nooter Corp. **John W. Maybaum** and **Burton M. Joseph** have been named sales engineers for Chicago Steel Tank.

SHELL OIL CO. has announced the promotion of three general sales managers to vice-presidents. The sales managers are: **Selwyn Eddy**, West Coast; **P. C. Thomas**, Midwest; and **J. L. Wadlow**, East Coast.

CHES M. HARDEN has been named general superintendent of drilling and production at the Lake Maracaibo joint concession of Pure Oil Co., Signal Oil & Gas Co., Hancock Oil Co., and Standard Oil Co. (Ohio). **G. R. Olsen** has been named senior production engineer for the concession.

WILLIAM F. GRINNAN has been re-elected president of the North Dakota Oil & Gas Assn. Other re-elected officers are: **C. Rex Brown, John Auten, W. E. Sloan,** and **Hugh Palmer**, vice-presidents; and **Allan Eastman**, executive director. **William Pearce** has been elected secretary, and **Evan Salzman** has been elected treasurer of the association.

WALTER G. WELSCH has been named manager of The Texas Co. (S.A.) Limited at Mexico City. He succeeds **Kingsley B. Niven** who is retiring after 35 years of service. Welsch joined The Texas Co. organization in 1934 and has served in a number of positions in the Dominican Republic and Honduras. He was named assistant manager of the South American affiliate in June of this year.

ROBERT J. BELKNAP has been named managing director of Standard-Vacuum Oil Co. (East Africa), Ltd., at Nairobi. He succeeds **L. H. Tremaine**, who is retiring. **John R. Kendall** succeeds Belknap as general manager of Standard-Vacuum Sales Co. in Indonesia. Kendall was formerly assistant manager there.

T. R. CORBETT has been elected managing director of Esso Nederland N.V. He will be in charge of refining activities in the Netherlands. Corbett had been managing director of Esso Standard Refinery S.A. at Antwerp, Belgium. **G. A. Stein** succeeds him in that position. Stein was formerly assistant manager at the refinery.

CHARLES A. HOUSTON has been named district exploration superintendent for Stanolind Oil & Gas Co. at Jackson, Miss. **A. T. Teague** succeeds Houston as district geologist at Jackson. Teague was formerly a geologist for Pan American Production Corp. at Shreveport.

ROBERT C. LEDFORD, operations manager for Marine Gathering Co., Houston, has been elected a vice-president. Ledford has been with Marine Gathering since 1950. He has over 20 years of experience in the design and construction of gas gathering systems.

A. B. MACAULEY has been appointed assistant to the vice-president and general manager of Atlantic Refining Co.'s crude oil production department at Dallas. **Clarence E. Cardwell Jr.** succeeds Macauley as manager of Atlantic's domestic production administrative division. Cardwell was formerly assistant to the manager of the company's West Texas-New Mexico region.

DR. CHARLES L. FLEMING, JR. has been elected a vice-president and director of Esso Research & Engineering Co. He succeeds **Dr. Carl O. Tongberg,** who recently resigned to become a vice-president and director of Carter Oil Co. Dr. Fleming has been with Esso Research since 1938, and became head of the products research division in 1954. He later became deputy coordinator for petroleum products and medical research. **Dr. John G. McNab** succeeds him in that position. **Harold J. Rose** has been named coordinator of chemicals research.

FORREST BELL will manage a new Shreveport district office for Montgomery Drilling Co. Bell recently resigned as a geologist at Dallas for Sun Oil Co.

JOHN W. CLARK has been named assistant manager of Magnolia Petroleum Co.'s exploration division at Dallas. Clark was formerly Magnolia's chief geologist. He joined the company in 1932, and was named assistant chief geologist at Dallas in 1944. He became chief geologist in 1952.

JAMES L. (Jerry) DONOVAN is retiring as assistant comptroller of Service Pipe Line Co. after 38 years of service. He joined the company in 1918 when it was called Sinclair Pipe Line Co. He later became assistant auditor, and in 1930 was named assistant comptroller.

RAY McGLOTHIN, SR., has been named president of the Texas Calgary Co., which recently merged with

CLASSIFIED

DISPLAYED RATES

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Alberta Oil Company in final stages of organization. 5,000,000 (NPV) shares. (None committed.) Interest in 33 wells. Reserves 3,000,000 bbls. Monthly income $6.000.00. Potential over $20,000.00 monthly. Sale price $300,000.00. Dominion Leaseholds Ltd.

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VENEZUELAN OIL SCOUTING AGENCY
Reports—Maps—Newsletter
Cable: VOSA, Caracas N. VanMiddlesworth
Mail: Apartado 3963 Phone: 54 48 02

Petroleum Products Refining & Producing Co. **Ray McGlothin, Jr.,** has been named executive vice-president of the company, which has just established offices at Abilene, Tex.

ROBERT A. CHIDSEY, operations manager for Carter Oil Co.'s Denver division, has been appointed executive chairman for the Colorado Oil Industry Information Committee.

HERMAN J. SCHMIDT has been elected general counsel of Socony Mobil Oil Co., Inc. **John J. Scott** succeeds Schmidt as associate general counsel. Both men will remain at Socony's headquarters in New York.

JAMES W. BATEMEN will direct the new projects division of Continental Oil Co.'s coordinating and planning department at Houston. **Dan H. Sanders** has been named director of the department's progress reports division.

ROBERT W. (Bob) GRIFFIN has been named assistant to the vice-president and manager of Sunray Mid-Continent Oil Co.'s production department at Tulsa. Griffin joined the company in 1948 and served as assistant superintendent of gas and gasoline operations, and assistant manager of the company's manufacturing and pipelines. He later became manager of the gas division of the production department at Tulsa. **L. G. (Gayle) Rodgers** succeeds him in that position. Rodgers was formerly a manufacturing department assistant for D-X Sunray Oil Co., a subsidiary company.

NELSON JONES has been named general counsel and a director of Humble Oil & Refining Co. Jones was formerly general attorney. He succeeds **Rex G. Baker,** who is retiring.

HENRY C. CORTES, assistant manager of Magnolia Petroleum Co.'s exploration division and director of the company's field research laboratories, has been named a vice-president. Cortes will be in charge of coordinating the company's offshore operations. He will also continue to direct the company's field research laboratories.

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Atlanta 3 — M. H. Miller
801-Rhodes-Harverty Bldg.
Walnut 5778

Boston 6 — Edward A. Callahan, Jr.
350 Park Square Bldg.
Hubbard 2-1760

Chicago 11 — G. L. Hackley, Jr.
W. F. Holbrook
520 North Michigan Avenue
Mohawk 4-5800

Cleveland 15 — J. E. MacArthur
1510 Hanna Bldg.
Superior 1-7000

Houston 25 — David G. Sawyer
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Madison 6-9351

New York 36 — Edward A. Callahan, Jr.
Donald R. Thompson
330 West 42nd Street
Longacre 4-3000

Philadelphia 3 — W. A. Potter
Architects Building
Rittenhouse 6-0670

San Francisco 4 — William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 19 — J. A. Hartley
209 Constantine Bldg.
611 South Boston
Gibson 7-5594

England, London E.C.4 — Herbert Lagler
McGraw-Hill Co., Ltd.
95 Farrington St.

Other Oil Industry Personnel Changes

Company:	To:	From:
Anchor Petroleum Co.		
Ray L. Felts	Mgr, refined oil sales, Tulsa	Tulsa office mgr
Floyd R. Foley	Mgr, oil well treating prod dept, Tulsa	
Dean L. Moffett	Mgr, road asphalt sales, Tulsa	Asphalt sales eng, Tulsa
Ashland Oil & Refining Co.		
W. Cecil Kilgore	Geologist, Oklahoma City	Geologist, Norman, Okla.
Axelson Mfg. Co.		
R. W. Reekstin	Chief eng, pet equipt prod, Los Angeles	Eng mgr, pet tech services, Los Angeles
Carter Oil Co.		
L. K. Clarke	Landman, Oklahoma City	Landman, Liberal, Kan.
Cities Service Gas Co.		
John F. Debold	Eng, Guymon (Tex.) pipeline div	Eng, Wichita, Kan.
Ammon V. Caffey	Supt, Greenburgh pipeline div, Medicine Lodge, Kan.	Eng, Guymon (Tex.) pipeline div
Colorado Oil & Gas Co.		
J. F. Hill	Dist landman, Shreveport	Landman, Wichita, Kan., Derby Oil Co.
Forrest Hewitt	Geologist, Shreveport	Geologist, Houston Oil Co. of Texas
Dowell Inc.		
Joe McClure	Area eng, Glendive, Mont.	Area eng, Billings, Mont.
Ethyl Corp.		
M. C. Hudgins	Asst resident mgr, Houston plant	Asst plant mgr, Baton Rouge, La.
J. J. Bergin	Asst resident mgr, Baton Rouge, La.	Asst plant mgr, Houston
J. C. Klock	Mgr maintenance, on-plant construction, Baton Rouge	Gen supt, Houston plant
Jones & Laughlin Supply Div.		
Jack L. Brown	Sales rep, Gladewater, Tex.	Store mgr, Gladewater
Loran W. Todd	Sales rep, Morgan City, La.	Sales rep, Houma, La.
John B. Shakely	Sales rep, Oklahoma City	Asst dist sales mgr, Ardmore, Okla.
Lion Oil Co.		
Boyd Lawrence Embrey	Mgr, market research, El Dorado, Ark.	Market analyst, El Dorado
Magnolia Petroleum Co.		
Robert W. Richards	Div attorney, Oklahoma City	
Wendell J. Doggett	Legal dept, Dallas	Legal staff, Oklahoma City
Sidney M. Groom, Jr.	Legal staff, Oklahoma City	Mgr offshore operations, Interior Dept., New Orleans
Mission Mfg. Co., Ltd.		
W. C. (Bill) Talbert	Sales mgr, London	Asst export sales mgr, New York
Pan-Am Southern Corp.		
John M. Brown	Refinery mgr, El Dorado, Ark.	Asst refinery mgr, El Dorado
E. N. Kimes	Retiring	Refinery mgr, El Dorado
H. K. Wheeler	Asst refinery mgr, El Dorado	Asst mgr, tech, El Dorado refinery
Petroleum Inc.		
R. E. Rust	Mgr, Shreveport dist.	Atlantic Refining Co.
Bill Rufrin	Mgr, landman, Lafayette, La.	
Phillips Petroleum Co.		
H. B. Sheets	Asst div sales mgr, northern Utah, southern Idaho	Div real estate rep, Salt Lake City
S. R. Cook	Div real estate rep, Salt Lake City	City sales mgr, Salt Lake City
Pure Oil Co.		
Adolph F. Spiehler	Mgr, tech dept, refining div, Chicago	Operations mgr, operating dept, refining dept, Chicago
Shell Oil Co. of Canada, Ltd.		
C. F. Williams	Sales mgr, Central div.	Operation mgr, Western div, Vancouver, B. C.
Skelly Oil Co.		
E. M. McCluggage	Landman, Amarillo, Tex.	Landman, Wichita, Kan.
Southern Pacific Pipe Lines		
J. W. Futral, Jr.	Mech eng, Los Angeles	
Tidewater Oil Co.		
Frank A. Guerin	Mgr, eastern mktg dist, Richmond	
Welex Jet Services, Inc.		
Ralph L. Vanderslice	Mgr, Shawnee, (Okla.) dist.	
New Ventures—		
Robert L. Stirling	Indep land and lease man, Billings, Mont.	Asst dist leaseman, Carter Oil Co., Vernal, Utah

Charge the Losses to Politics

FEDERAL AND STATE OFFICIALS have written a sorry chapter in their handling of the Louisiana offshore dispute.

Some of the displays of petty politics, temper tantrums, and deliberate stalling might have been amusing except that they stymied an important program and hurt oil operators and others needlessly.

There were prospects, as this was being written, that an agreement might be reached soon. But that won't erase the damage already caused through months of dilly-dallying.

While the state-federal bickering was going on, drilling starts were delayed, new leasing was ended, expensive offshore rigs were idled, and thousands of people involved directly or indirectly in offshore operations were put out of work.

THE BIGGEST LOSERS, of course, are the companies with heavy investments in offshore projects. Even though they weren't a party to the fracas, they were paying a lion's share of the bill through funds tied up in equipment, manpower, lease rentals, etc.

There are other losers. Both the federal government and the state are losing royalty from wells which would have been drilled and from lease bonuses which would have been paid had not leasing and new drilling been stalled for all these months.

The industry as a whole, and the nation, too, have been deprived of the development of crude reserves—and this could prove costly. If there has been any doubt about the importance of these domestic resources, the Suez crisis should serve as a reminder that the United States needs all the oil reserves it can find. And it needs them now.

Unfortunately, some fast and loose politics got involved in the problem. Instead of an earnest effort to settle their differences, some officials seemingly were trying NOT to reach a solution.

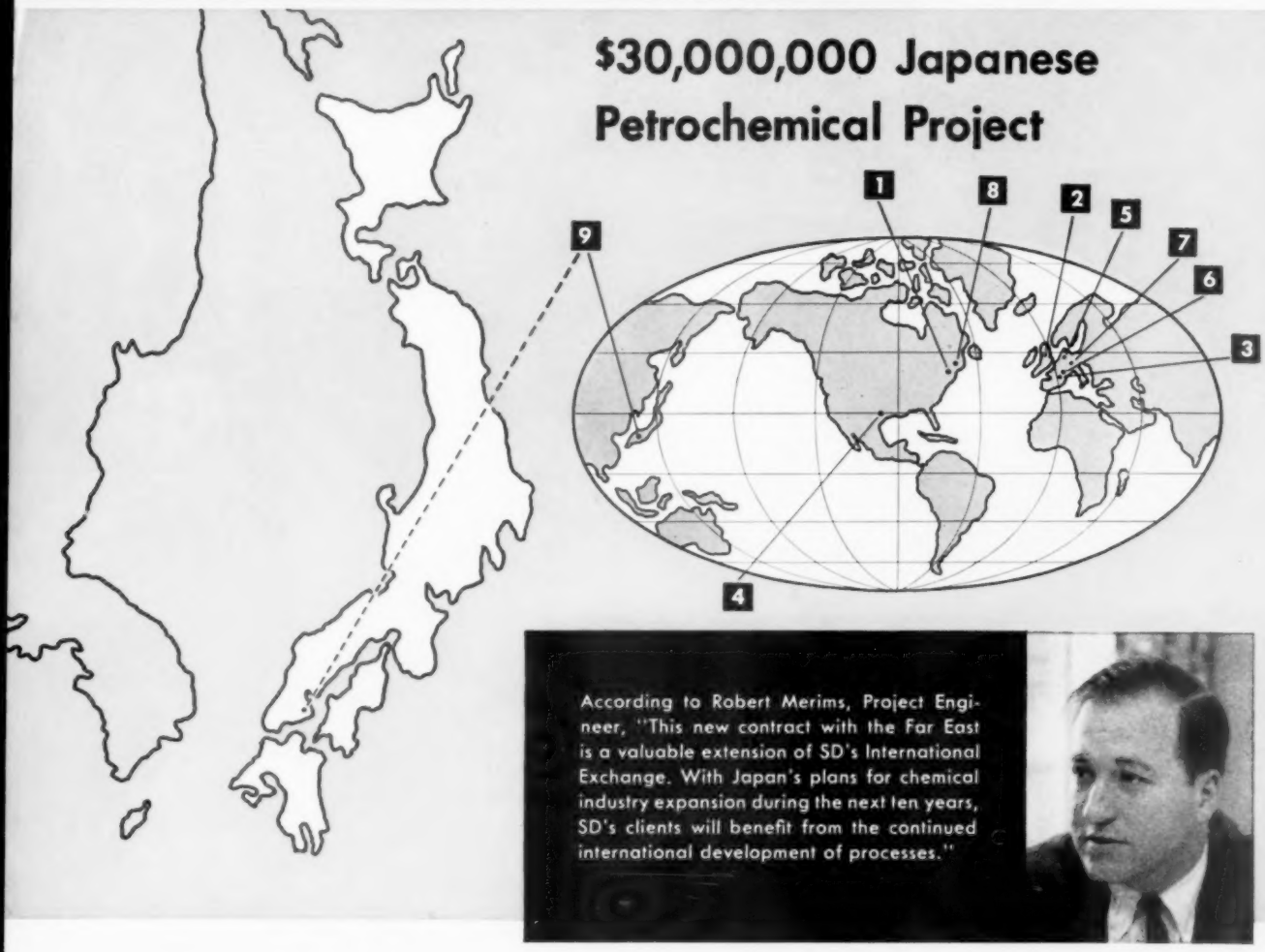
THE WORST OFFENDER has been the state, chiefly because it decided that its best hope lay in playing a waiting game. So it set out to block federal leasing in the disputed zone. It did not anticipate that the Supreme Court would include a ban on drilling. This put unexpected pressure on the state, but it still continued its course of delay. The federal government, with the court's drilling ban playing in its hands, could afford to sit tight.

Virtually all the state-federal negotiations on the matter have been veiled in secrecy. And there's the rub. If the spotlight of publicity had been turned on, it would have gone a long way in clearing up contradictory reports, misleading statements, and petty bickering.

And, after all, this happens to fall into the realm of public business, because the citizens of Louisiana and of the entire nation have a stake in those offshore waters and the oil beneath them.

You and I both belong here! After all, there wouldn't *be* any busy highways without us! I'm a secretary to a land man. You may be anything from a driller to a board chairman. Between us we helped keep over 50 million cars on the road last year. People used them for fun, convenience, business. Remember that, the next time you hear unfair criticism of us oilmen. We've got lots of facts on our side. Let's speak up and make the facts known! **SHELL OIL COMPANY**

NEW DEVELOPMENTS


$30,000,000 Japanese
Petrochemical Project
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According to Robert Merims, Project Engineer, "This new contract with the Far East is a valuable extension of SD's International Exchange. With Japan's plans for chemical industry expansion during the next ten years, SD's clients will benefit from the continued international development of processes."

SD Has Complete Process Responsibility For Ethylene Oxide, Glycol and Cumene

In a move to regain Japan's markets in Southeast Asia, Mitsui Petrochemical Industries, Ltd., will build Japan's first major petrochemical project. Financed entirely by Japanese capital, this $30,000,000 facility will be comparable in size of investment to the largest petrochemical plants in continental Europe —among them in turn some SD clients.

Three key units in the first phase of this project, scheduled for completion in November, 1957, will utilize SD processes for these basic chemicals. Ethylene Oxide by direct air oxidation of ethylene; Cumene by alkylation of benzene with propylene; Ethylene Glycol by hydration of ethylene oxide. In addition to designing and engineering these processes, SD will also oversee construction and supervise initial operation.

The second phase of the Mitsui project, now in the planning stage, will produce dimethyl terephthalate and other chemical intermediates. A major part of this production will be used for the manufacture of synthetic textile fibres.

This is another example of how SD's "International Exchange" works. The ethylene oxide process, for instance, started in SD's American Laboratories (1); was developed in an English pilot plant (2); went on stream for the first time for Naphtachimie in France (3); shortly after was used in an American plant (4); another for Societé Chimique des Derives du Petrole in Belgium (5); an expansion of Naphtachimie (6); another European plant not yet publicly announced (7); the General Aniline and Film plant in Linden, New Jersey (8); and now across the Pacific to Japan (9).

With this project SD's cumene process takes its first trip abroad. In this country the Barrett Division of Allied Chemical & Dye Corp. is now producing cumene in its SD-engineered plant. Mitsui chose the SD process because it produces purer cumene than any other known process. And the plant may be adapted to production of other alkylates, such as ethyl benzene and diisopropyl benzenes.

Perhaps you can benefit from this worldwide experience in organic chemical plant design. Whether your project involves new plant construction, revamping existing facilities, developing a new process, acquiring an existing process or engineering one of your own, you will profit by SD's confidential service.

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